**UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF OHIO
EASTERN DIVISION**

Nancy Goodman, *et al.*, Plaintiffs, v. J.P. Morgan Investment Management Inc., *et al.* Defendants.	Civil No. 2:14-CV-414 Chief Judge Sargus Magistrate Judge Jolson
Campbell Family Trust, *et al.*, Plaintiffs, v. J.P. Morgan Investment Management Inc., *et al.*, Defendants.	Civil No. 2:15-CV-2923 Chief Judge Sargus Magistrate Judge Jolson

**DECLARATION OF RENÉ M. STULZ
IN SUPPORT OF DEFENDANTS' OPPOSITION TO
PLAINTIFFS' MOTION FOR PARTIAL SUMMARY JUDGMENT**

I, René M. Stulz, Ph.D., declare as follows:

1. I am an adult over the age of 18, and I have personal knowledge of the facts set forth in this declaration.

2. I have been engaged by counsel for Defendants J.P. Morgan Investment Management, Inc. ("JPMIM") and JP Morgan Funds Management, Inc. ("JPMFM") as an expert in the above-captioned actions. In connection with that engagement, I prepared an initial expert report dated May 26, 2017.

3. As part of my expert work, I was asked, among other things, to assess the various risks present in the mutual fund industry and to determine to what extent JPMIM is exposed to these risks.

4. I concluded that JPMIM faces substantial risks in its role as adviser to the mutual funds at issue in the above-captioned actions. These risks, which can be categorized as liquidity risks, business risks, operational risks, pricing risks, litigation risks, regulatory risks, and reputational risks, all affect JPMIM's financial health, and therefore must be accounted for when assessing the fees collected by JPMIM.

5. Further, I concluded that the risks faced by JPMIM in its role as adviser differ in type and magnitude from those faced by JPMIM in its role as subadviser such that JPMIM faces greater risk as an adviser. Because a subadviser faces a different risk profile than an adviser, the fees collected in each role are not directly comparable. An analysis of the fees of an adviser or a subadviser would be incomplete without assessing the relevant risks faced by each.

6. Advisers and subadvisers have different responsibilities. Because they have different responsibilities, they are exposed to different risks. As a subadviser, JPMIM is shielded from certain risks and is able to share costs associated with certain risks with a fund's adviser.

7. The increased exposure to risk JPMIM faces as an adviser decreases its expected profitability for several reasons.

8. First, JPMIM must set up and run the operational infrastructure required to manage these risks.

9. Second, when these risks materialize, the financial repercussions directly affect JPMIM's profitability and may have an impact on the profitability of other businesses of JPMorgan Chase & Co.

10. Third, because financial institutions have to hold more capital to support these risks, they incur an opportunity cost, as they are not able to deploy that capital elsewhere. Just like other financial institutions, as JPMIM is exposed to more risk, JPMorgan Chase & Co. has

to hold more capital – in part because regulators requires it to do so and in part because a company's value will decrease if it is financially fragile. For a given amount of allocated capital, JPMIM faces limitations in taking on additional risks because there is only so much risk that an institution can bear without endangering its financial stability. Therefore, the additional risk of taking on the adviser role may preclude JPMIM, or more generally, JPMorgan Asset Management, Holdings Inc., from starting valuable but risky projects.

11. Fourth, a financial institution's risk exposures can lead to higher funding costs as its debt and equity may become riskier. If investors view a company as risky, they will require higher rates of return on their investments. Therefore, in order to attract investors, higher risk would lead to higher rates for debt financing and a higher required expected return for equity investors.

12. The fees collected by JPMIM in its role as adviser help compensate it for the costs involved in managing these risks on behalf of the fund and for bearing additional risks itself.

13. Any comparison between the fees that JPMIM charges as an adviser and as a subadviser would be incomplete and unusable if it did not fully consider the substantial differences in risks borne by JPMIM when it acts as an adviser and when it acts as a subadviser.

14. A true and correct copy of my initial expert report dated May 26, 2017 is attached as Exhibit 1 to this declaration.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on this 16th day of November, 2017.

René M. Stulz, Ph.D.

Exhibit 1

Nancy Goodman, et al., v. J.P. Morgan Investment Management, Inc., et al.

Civil Action No.: 2:14-CV-414

Campbell Family Trust, et al., v. J.P. Morgan Investment Management, Inc., et al.

Civil Action No.: 2:15-CV-2923

Expert Report

René M. Stulz, Ph.D.

May 26, 2017

Table of Contents

I. Qualifications 1
II. Assignment 2
III. Summary of Opinions 2
IV. Background 3
  A. Mutual Funds 3
  B. At-Issue Funds 4
  C. Relevant JP Morgan Entities 5
  D. Summary of Allegations 6
V. JPMIM Faces Substantially More Risk as an Adviser than as a Subadviser 7
  A. Liquidity Risks 9
  B. Business Risks 15
  C. Operational Risks 16
  D. Pricing Risks 18
  E. Litigation Risks 19
  F. Regulatory Risks 21
  G. Reputational Risks 22
VI. To the Extent (If Any) that JPMIM Benefits from Economies of Scale, it has Mechanisms in Place to Share these Economies with Investors 24
  A. There is No Consensus on the Size and Nature of Economies of Scale in the Mutual Fund Industry 25
  B. JPMIM has Instituted Numerous Mechanisms to Share Potential Economies of Scale 26
    1. Pricing to Scale 27
    2. Expense Caps and Fee Waivers 27
    3. Improvements in Services and Infrastructure 28
    4. Administrative Fee Breakpoints 28

I. Qualifications

1. I hold the Everett D. Reese Chair in Money and Banking at The Ohio State University. I am also Director of the Dice Center for Research in Financial Economics at The Ohio State University and a Research Associate of the National Bureau of Economic Research in Cambridge, Massachusetts. Since receiving my Ph.D. in Economics from the Massachusetts Institute of Technology in 1980, I have taught at the Massachusetts Institute of Technology, the University of Rochester, the University of Chicago, and The Ohio State University. I was a Bower Fellow at the Harvard Business School from 1996 to 1997.

2. I am a past president of the American Finance Association, a fellow of the American Finance Association, the Financial Management Association, the European Corporate Governance Institute, and the Wharton Financial Institutions Center, and a past president of the Western Finance Association. I received a Doctorate Honoris Causa from the University of Neuchâtel in Switzerland and the Risk Manager of the Year award from the Global Association of Risk Professionals ("GARP"). I have also been recognized by a number of organizations for my contributions to financial economics by awards or by invitations to be a keynote speaker. I belong to the editorial boards of more than ten academic and practitioner publications. I am a member of the financial research advisory committee of the Office of Financial Research of the United States Treasury. Further, I am a member of the Asset Pricing and Corporate Finance Programs and the director of the Risk of Financial Institutions Group of the National Bureau of Economic Research. I was editor of the *Journal of Finance* for twelve years and co-editor of the *Journal of Financial Economics* for five years (these are two of the top three journals in the field of financial economics). Thomson Reuters includes me in its list of the world's most influential scientific minds.

3. I have published more than 100 papers in finance and economics journals, including the *Journal of Political Economy*, the *Journal of Financial Economics*, the *Journal of Finance*, and the *Review of Financial Studies*. I am the author of a textbook titled *Risk Management and Derivatives*, a co-author of *The Squam Lake Report: Fixing the Financial System*, and have edited several books, including *Handbook of the Economics of Finance* and *International Capital Markets*.

4. I have taught in executive development programs in the North America, Europe, and Asia. I have consulted for major corporations, law firms, the New York Stock Exchange, the

IMF, and the World Bank. I am a director of Banque Bonhôte and a trustee of the Global Association of Risk Professionals where I also chair the governance committee.

5. My current CV is attached as **Appendix A**. A list of my prior testimony is attached as **Appendix B**. A list of documents I considered in forming my opinions is attached as **Appendix C**.

II. Assignment

6. I have been asked by counsel to Defendants J.P. Morgan Investment Management, Inc., ("JPMIM") and JP Morgan Funds Management, Inc., ("JPMFM"),[1] to opine on economic issues surrounding Defendants' roles as adviser and administrator to the mutual funds at issue in this matter. Specifically, I have been asked to assess the various risks present in the mutual fund industry and to determine to what extent JPMIM is exposed to these risks. I have also been asked to opine on the economies of scale in the mutual fund industry, including the mechanisms JPMIM has put in place to share potential economies of scale with investors.

7. The analyses and opinions expressed in this report are my own. I am being compensated for my time and services at my regular hourly rate of $900. I have been assisted in this matter by staff of Cornerstone Research, who worked under my direction. I receive compensation from Cornerstone Research based on its collected staff billings for its support of me in this matter. Neither my compensation in this matter nor my compensation from Cornerstone Research is in any way contingent or based on the content of my opinions or the outcome of this or any other matter.

III. Summary of Opinions

8. JPMIM faces substantial risks in its role as adviser to the mutual funds at issue in this case. These risks, which can be categorized as liquidity risks, business risks, operational risks, pricing risks, litigation risks, regulatory risks, and reputational risks, all affect JPMIM's financial health, and therefore must be accounted for when assessing the fees collected by JPMIM.

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[1] I understand that JPMFM has merged into JPMIM. I will therefore refer to Defendants as JPMIM.

9. Further, the risks faced by JPMIM in its role as adviser differ in type and magnitude from those faced by JPMIM in its role as subadviser such that JPMIM faces greater risk as an adviser. Because a subadviser faces a different risk profile than an adviser, the fees collected in each role are not directly comparable. An analysis of the fees of an adviser or a subadviser would be incomplete without assessing the relevant risks faced by each.

10. Finally, there is no consensus on the size and nature of economies of scale in the mutual fund industry. To the extent that JPMIM benefits from economies of scale in its role as adviser, it has instituted mechanisms to share these economies of scale with investors. These mechanisms include pricing funds to scale, instituting expense caps and fee waivers, improving services and infrastructure, and establishing administrative fee breakpoints.

IV. Background

A. Mutual Funds

11. A mutual fund is an investment security that enables investors to pool their money into a single fund that can be managed by a team of professionals. In exchange for his or her investment, each investor receives shares that represent claims on a portion of the fund's investments. Each day, the per-share net asset value ("NAV") of a fund is calculated, and investors in open-end mutual funds have the opportunity to purchase or redeem shares at the NAV.[2]

12. Mutual funds are typically structured as corporations or trusts governed by a board of directors (if a corporation) or board of trustees (if a trust). Instead of directly employing professionals to manage and administer the fund, the board contracts with third-party entities to perform these duties. A mutual fund's board monitors the performance of these third-party providers and, at least once a year, reviews their contracts to ensure that the terms, including the fees, continue to be fair and reasonable.[3]

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[2] Mutual funds may restrict or limit shareholders' ability to redeem shares in certain scenarios. For example, within the JPM Fund Complex, shareholders' ability to redeem shares may be limited if: "1. Trading on the NYSE is restricted; 2. The NYSE is closed (other than weekend and holiday closings); 3. Federal securities laws permit; 4. The Securities and Exchange Commission (SEC) has permitted a suspension; or 5. An emergency exists, as determined by the SEC." Additionally, the funds in the JPM Fund Complex may redeem amounts of $250,000 or more in securities instead of cash. See JPMorgan Trust I, Form N-1A Prospectus, filed 10/30/15, p. 102; JPMorgan Trust II, Form N-1A Prospectus, filed 6/26/15, p. 143.

[3] This process is governed by Section 15(c) of the Investment Company Act of 1940 ("ICA"). See https://www.sec.gov/about/laws/ica40.pdf.

13. One important contract is that between a fund and its investment adviser. The adviser's duties include, among others, overseeing and carrying out the investment management activities of the fund. In short, a fund's adviser is responsible for the performance of the fund's investments.[4] In some mutual funds, the adviser further contracts with one or more subadvisers, who may make day-to-day investment decisions. Even in such arrangements, the adviser (not the subadviser) is ultimately responsible for the fund's investment process and performance. JPMIM provides both advisory and subadvisory services to various mutual funds.

14. For some mutual funds, a second important contract is that between a fund and its administrator. The administrator's duties may include, among others, providing support to the fund's board, managing the fund's finances, keeping track of a fund's holdings, creating and filing financial statements, and providing legal and regulatory oversight. Similar to an adviser, the administrator may also choose to sub-contract some of its duties to subadministrators. JPMIM provides administrative services to mutual funds for which JPMIM serves as investment adviser.

15. Mutual funds are offered to investors in different ways. Many funds are available to individual investors through brokerages and other distribution channels. These funds, called retail funds, are generally available to the public and are usually offered in multiple share classes that will differ in aspects such as fee structure and minimum investment level. For many funds, some of the share classes are available only to institutional investors and/or require large minimum investments. Other funds, called non-retail funds, can only be obtained through specific products and are not available to the general public as a standalone investment. For example, many insurance companies offer variable annuity products, and investments in some mutual funds can only be made, indirectly, through these annuity products.

B. At-Issue Funds

16. There are two complaints in this matter covering seven funds in total. The Goodman Complaint covers three bond funds (collectively, the "At-Issue Fixed Income Funds"): the JPMorgan Core Bond Fund (the "Core Bond Fund"), the JPMorgan High Yield Fund (the "High Yield Fund"), and the JPMorgan Short Duration Bond Fund (the "Short Duration Bond

[4] Unless otherwise indicated, I use the term performance to refer to a fund's total return, net of expenses and fees.

Fund").[5] The Campbell Complaint covers four equity funds (collectively, the "At-Issue Equity Funds"): the JPMorgan Mid Cap Value Fund (the "Mid Cap Value Fund"), the JPMorgan Large Cap Growth Fund (the "Large Cap Growth Fund"), the JPMorgan Value Advantage Fund (the "Value Advantage Fund"), and the JPMorgan U.S. Equity Fund (the "U.S. Equity Fund").[6]

17. JPMIM serves as adviser and as administrator for each of these seven funds (the "At-Issue Funds"). Collectively, the At-Issue Funds had $105 billion in assets under management at the close of their respective Fiscal Years 2015. **Exhibit 1** provides assets under management figures for the seven At-Issue Funds, including assets by share class for each of the funds.

C. Relevant JP Morgan Entities

18. JPMIM, the investment adviser for the At-Issue Funds,[7] is a wholly-owned subsidiary of JPMorgan Asset Management, Holdings Inc. ("JPMAM"), which itself is a wholly-owned subsidiary of JPMorgan Chase & Co ("the Bank" or "JPMorgan").[8] JPMAM is one of the Bank's four core Lines of Business ("LOBs").[9]

19. The At-Issue Funds and other funds advised by JPMIM (collectively, the "JPM Fund Complex") are organized into several trusts (or for one of the funds, a corporation).[10] The two trusts and the corporation have each filed separate registration statements with the SEC. Table 1 shows in which trust or corporation each of the At-Issue Funds is included.

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[5] Goodman et al. v. J.P. Morgan Investment Management, Inc., filed 12/22/15 (the "Goodman Complaint"), ¶1; Prospectuses of the At-Issue Funds. See JPMorgan Trust II, Form N-1A Prospectus, filed 6/26/15.

[6] Campbell Family Trust et al. v. J.P. Morgan Investment Management, Inc. et al., filed 10/16/15 (the "Campbell Complaint," and together with the Goodman Complaint, "the Complaints"), ¶1; Prospectuses of the At-Issue Funds. See JPMorgan Trust I, Form N-1A Prospectus, filed 10/30/15.

[7] Campbell Complaint, ¶2; Goodman Complaint, ¶¶34, 39, 44, 49, 54. See also Form N-1A Prospectus.

[8] JPMorgan Trust I, Form N-1A Prospectus, filed 10/30/15, p. 86. See also, JPMorgan Trust II, Form N-1A Prospectus, filed 10/31/16, p. 109.

[9] The other LOBs are Consumer & Community Banking, Commercial Banking, and Corporate & Investment Banking. Consumer & Community Banking is the sole LOB in the Bank's consumer business segment, and the other three LOBs together comprise the Bank's wholesale businesses. See "Memorandum RE: Organizational Charts," 6/15/15, JPMIM02093634–3677 at 3635. See also, J.P. Morgan Chase & Co., Form 10-K for the fiscal year ended December 31, 2015, filed 2/23/16, pp. 1, 83. During the fiscal year ended December 31, 2016, the Bank renamed the Asset Management LOB to Asset & Wealth Management. See J.P. Morgan Chase & Co., Form 10-K for the fiscal year ended December 31, 2016, filed 2/28/17, p. 51.

[10] JPMorgan Trust I, Form N-1A Prospectus, filed 10/30/15, pp. 71, 86 (sections titled "The Funds' Management and Administration"); JPMorgan Trust II, Form N-1A Prospectus, filed 6/26/15, p. 124; J.P. Morgan Fleming Mutual Fund Group, Form N-1A Prospectus, filed 10/30/15, p. 71.

Table 1: At-Issue Funds Trust Composition	
Fund	Trust
U.S. Equity Fund	JPMorgan Trust I
Value Advantage Fund	JPMorgan Trust I
Large Cap Growth Fund	JPMorgan Trust II
Core Bond Fund	JPMorgan Trust II
High Yield Fund	JPMorgan Trust II
Short Duration Bond Fund	JPMorgan Trust II
Mid Cap Value Fund	J.P. Morgan Fleming Mutual Fund Group

D. Summary of Allegations

20. For six of the seven At-Issue Funds (the Large Cap Growth Fund, the Mid Cap Value Fund, the Value Advantage Fund, the Core Bond Fund, the High Yield Fund, and the Short Duration Bond Fund, collectively the "Advisory Claim Funds"), Plaintiffs allege that the fees JPMIM collected in its role as adviser to the funds "are so disproportionately large that they bear no reasonable relationship to the value of the services provided by Defendant and could not have been the product of arms-length bargaining."[11] Plaintiffs base this claim in large part on the allegation that JPMIM collects lower fees while performing similar duties as a subadviser for various other funds.[12] In the Complaints, Plaintiffs list twelve funds subadvised by JPMIM that they state are comparable to the At-Issue Funds.[13] Similarly, for all of the At-Issue Funds, Plaintiffs make the same claims with respect to the fees JPMIM collected in its role as administrator to the funds.[14]

21. **Exhibit 2** lists the At-Issue Funds and the twelve funds subadvised by JPMIM that Plaintiffs allege are comparable to the At-Issue Funds in the first panel. The second panel in **Exhibit 2** extends Plaintiffs' list to include additional funds that are subadvised by JPMIM and have investment objectives similar to those of the twelve funds identified by Plaintiffs. I refer to the funds listed on the first and second panels of **Exhibit 2** that are subadvised by JPMIM as the "Subadvised Funds." **Exhibit 2** also lists whether each corresponding fund is

[11] Campbell Complaint, ¶ 4; Goodman Complaint, ¶ 4.
[12] Campbell Complaint, ¶ 9; Goodman Complaint, ¶ 9.
[13] Campbell Complaint, ¶ 71; Goodman Complaint, ¶ 69.
[14] Campbell Complaint, ¶ 15; Goodman Complaint, ¶ 14.

categorized as a retail fund (collectively, the "Retail Subadvised Funds") or a non-retail fund (collectively, the "Non-Retail Subadvised Funds").

V. JPMIM Faces Substantially More Risk as an Adviser than as a Subadviser

22. Plaintiffs argue that JPMIM's role as the adviser to the At-Issue Funds is substantially similar to its role as a subadviser hired by each Subadvised Fund's investment adviser. In doing so, Plaintiffs focus their argument solely on their understanding of the services offered and ignore the differing risks faced by JPMIM in each capacity.[15] The differing risks are a result of two important distinctions between JPMIM's role as adviser to the At-Issue Funds and its role as subadviser hired by a Subadvised Fund's investment adviser. First, the risks faced by advisers differ substantially in type and magnitude than those faced by subadvisers. Second, the risk profile of the At-Issue Funds, being funds available to retail investors, differs from the risk profile of the Non-Retail Subadvised Funds, being funds primarily available only through insurance products such as variable annuities.

23. As a result of these critical distinctions, JPMIM bears different risks, both in type and magnitude, when it acts as the adviser to the At-Issue Funds compared to when it acts as a subadviser to other funds. As a subadviser, JPMIM is shielded from certain risks and is able to share costs associated with certain other risks with a fund's adviser. The increased exposure to risk JPMIM faces as an adviser decreases its expected profitability for several reasons.

24. First, JPMIM must set up and run the operational infrastructure required to manage these risks. As discussed in more detail below, each different type of risk borne by JPMIM in its role as adviser requires substantial system and personnel resources to manage.

25. Second, when these risks materialize, the financial repercussions directly affect JPMIM's profitability and may have an impact on the profitability of other businesses of JPMorgan. While some of the risks discussed below do not require JPMIM to incur substantial immediate costs, when such risks materialize, the financial impact on JPMIM can be considerable.

26. Third, because financial institutions have to hold more capital to support these risks, they incur an opportunity cost, as they are not able to deploy that capital elsewhere. Just like other financial institutions, as JPMIM is exposed to more risk, JPMorgan has to hold more

[15] I have not been asked to respond to Plaintiffs' claim relating to their understanding of the services offered.

capital – in part because regulators require it to do so and in part because a company's value will decrease if it is financially fragile.[16] For a given amount of allocated capital, JPMIM faces limitations in taking on additional risks because there is only so much risk that an institution can bear without endangering its financial stability.[17] Therefore, the additional risk of taking on the adviser role may preclude JPMIM, or, more generally, JPMAM, from starting valuable but risky projects.

27. Fourth, a financial institution's risk exposures can lead to higher funding costs as its debt and equity may become riskier. If investors view a company as risky, they will require higher rates of return on their investments. Therefore, in order to attract investors, higher risk would lead to higher rates for debt financing and a higher required expected return for equity investors.

28. The fees collected by JPMIM in its role as adviser help compensate it for the costs involved in managing these risks on behalf of the fund and for bearing additional risks itself.[18] While the risks discussed in this section could cause substantial losses at any point, over the normal course of business, they may not have a direct monetary impact on the company. Due to the nature of the risks, the impact will often not appear completely in fund accounting profitability analyses, since such analyses only reflect costs incurred in managing the risks and tangible, realized, direct losses from these risks when they materialize. However, for these institutions, being exposed to risks has costs even when these risks have not yet materialized and have a low probability of doing so.[19] When performing a holistic review of a fund adviser's economic situation, it is vitally important to not only assess the fees collected and costs incurred, but also the various risks to which advisers or subadvisers are exposed.

29. Advisers and subadvisers have different responsibilities. Because they have different responsibilities, they are exposed to different risks. The differences in responsibilities can be seen through the investment advisory agreements of the At-Issue Funds and subadvisory agreements of the Subadvised Funds. For example, the advisory agreement for J.P. Morgan Fleming Mutual Fund Group (the trust that includes the Mid Cap Value Fund) states:

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[16] See Stulz, René, "Risk Management, Governance, Culture, and Risk Taking in Banks," *FRBNY Economic Policy Review*, 2016, for a review of the relationship between a financial institution's risk and the amount of capital it holds.

[17] JPMorgan allocates capital across its lines of business. This capital supports the risks taken by its lines of business. See J.P. Morgan Chase & Co., Form 10-K for the fiscal year ended December 31, 2015, filed 2/23/16, pp. 83, 156; Telephone Interview with Judy Beyer, conducted 5/11/17.

[18] [redacted]

[19] Stulz, René, "Risk Management, Governance, Culture, and Risk Taking in Banks," *FRBNY Economic Policy Review*, 2016, p. 55.

> The Corporation employs the Adviser [Robert Fleming, Inc., succeeded by JPMIM] to manage the investment and reinvestment of the assets of the Funds, to continuously review, supervise and administer the investment program of each of the Funds, to determine in its discretion the securities to be purchased or sold and the portion of each such Fund's assets to be held uninvested, to provide the Corporation with records concerning the Adviser's activities which the Corporation is required to maintain, and to render regular reports to the Corporation's officers and Board of Directors (the "Board") concerning the Adviser's discharge of the foregoing responsibilities.[20]

In contrast, the subadvisory agreement for the Lincoln Variable Insurance Products Trust (the trust that includes the LVIP JPMorgan Mid Cap Value RPM Fund, one of the Subadvised Funds) states:

> **Subject to the supervision and control of the Adviser** and the Board of Trustees (the 'Trustees') of the Trust, the Sub-Adviser [JPMIM], at its expense, will furnish continuously an investment program for the Managed Portion.[21]

30. The clear hierarchical structure established by these contracts, with trustees overseeing an adviser overseeing a subadviser, reinforces the idea that the different entities are subject to different responsibilities and risks.[22]

31. In the remainder of section, I examine how advisers and subadvisers are exposed to risks considered by risk managers to be important in the asset management industry. The classification and terminology I use may differ across risk managers, as there is some qualitative judgment in how various risks are referred to and classified. The specific categories of risks I consider are liquidity risks, business risks, operational risks, pricing risks, litigation risks, regulatory risks, and reputational risks.

A. Liquidity Risks

32. One of the important attributes of mutual funds is daily liquidity. As mentioned above, open-end mutual funds (such as the At-Issue Funds) have to redeem shares daily for

[20] Fleming Mutual Fund Group, Investment Advisory Agreement, 12/27/00, p. 1. JPMIM was the successor to Robert Fleming, Inc. See J.P. Morgan Fleming Mutual Fund Group, Amended Investment Advisory Agreement, 12/23/04, p. 1.
[21] Lincoln Variable Insurance Products Trust, Sub-Advisory Agreement, JPMIM00220912–0923 at 0912. Emphasis added.
[22] While the language in these contracts anecdotally indicates the differing responsibilities of the two roles, I am not offering a legal opinion in interpreting these contracts or implying that these contracts dictate exactly what services are provided in each role.

investors who want to redeem.[23] If a day's inflows do not cover that day's outflows, the fund risks having to sell securities or otherwise adjust the portfolio to honor the redemption requests. To help manage this risk, advisers, on behalf of funds, hold some assets in cash and/or highly liquid assets, maintain contingent sources of cash in the form of lines of credit, and/or have the ability to borrow from other funds in a complex.[24] Liquidity risk also forces advisers to pay more attention to the liquidity of the fund's assets and to monitor inflows and outflows more closely than would typically be the case for the subadviser of a non-retail fund.

33. Academics have extensively investigated the risks associated with redemption at daily NAV for mutual funds. Researchers have demonstrated that the structure of mutual funds gives rise to the risk of runs.[25] Surprisingly, runs can arise simply because investors are worried that a run might take place, even if a fund is fundamentally sound and healthy.[26]

34. Though, for most days, redemptions are handled without large disruptions, any fund faces the risk of sudden rapid outflows. One academic paper reports that from 1996 to 2003, across all fund-months, 5% of the months have redemptions in excess of 20% of total assets.[27] Rapid net outflows can lead to fire sales,[28] to more outflows,[29] and to a reputation loss of the adviser.

35. Rapid net outflows can be costly for the performance of the fund for two reasons. First, when a mutual fund has to sell securities quickly, the fund may have to sell at a discounted price so that enough buyers will be interested. When assets are sold for less than their fair value the performance of the fund will be negatively impacted.[30] Second, these costs are not borne by the departing shareholders, but by the shareholders who remain in the fund. This is because the redemption price is set at 4:00 PM before a fund actually knows the

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[23] Chernenko, Sergey and Adi Sunderam, "Liquidity Transformation in Asset Management: Evidence from the Cash Holdings of Mutual Funds," Working Paper No. w22391, *NBER*, 2016, p. 1; Hanouna, Paul et al., "Liquidity and flows of mutual funds," *SEC White Papers,* 2015. There are various exceptions available to funds to postpone redemption, but these exceptions are almost never invoked because of the perception that funds typically would not survive invoking them.

[24] Chernenko, Sergey and Adi Sunderam, "Liquidity Transformation in Asset Management: Evidence from the Cash Holdings of Mutual Funds," Working Paper No. w22391, *NBER*, 2016.

[25] Zeng analyzes such runs and provides references to the literature. See Zeng, Yao, "A Dynamic Theory of Mutual Fund Runs and Liquidity Management," 2017. Available at SSRN: https://ssrn.com/abstract=2907718.

[26] Bernardo, Antonio E. and Ivo Welch, "Liquidity and Financial Market Runs," *Yale ICF Working Paper* No. 02-11, 2003.

[27] Chen, Qi, Itay Goldstein, and Wei Jiang, "Payoff Complementarities and Financial Fragility: Evidence from Mutual Fund Outflows," *Journal of Financial Economics*, Vol. 97, No. 2, 2010, pp. 239–262 at p. 242.

[28] Coval and Stafford provide evidence on the losses made by funds because of fire sales. Coval, Joshua and Erik Stafford, "Asset Fire Sales (and Purchases) in Equity Markets," *Journal of Financial Economics*, 2007, pp. 479–512.

[29] Chen, Qi, Itay Goldstein, and Wei Jiang, "Payoff Complementarities and Financial Fragility: Evidence from Mutual Fund Outflows," *Journal of Financial Economics*, Vol. 97, No. 2, 2010, pp. 239–262.

[30] The NAV calculation uses prices that reflect fair value, namely the price that would be obtained under normal circumstances where traders can work the market. A fund that has to come up with cash quickly and sell securities for that reason will have to sell at a discount from fair value.

extent of redemptions and typically before it sells securities to honor redemptions or to replenish its cash. One academic study concludes that liquidity-motivated trading of a fund at the annual rate of 100% of assets could decrease performance by 1.5% to 2.0%.[31] Such a decrease could be enough to render a fund's performance uncompetitive.

36. The risk of needing to accommodate large net outflows is not uniform across funds. Further, the cost of accommodating large net outflows differs across funds, as it is more impactful for funds invested in less liquid securities. The risk is larger for funds with retail investors that face limited constraints or costs on redemption. For these investors, any threat of loss due to redemptions from other investors makes it more advantageous to redeem. In contrast, the total risk is lower for institutional funds or funds where investors face redemption costs, since such redemption costs limit the possibility of sudden mass redemptions. It follows from this that the risk of potentially large outflows is a risk that is largest for retail funds, such as the At-Issue Funds.

37. Regulators have been highly concerned about the mismatch between the high liquidity of mutual fund shares and the low liquidity of mutual fund holdings. Economists at the Federal Reserve Bank of New York discuss the vulnerability of mutual funds to runs. They conclude that while small redemptions can be paid out using a fund's liquidity buffer, larger redemptions require the sale of potentially illiquid assets.[32] The Financial Stability Board ("FSB"), which plays a critical role in establishing the regulatory framework for financial institutions across countries, describes the liquidity mismatch of open-end funds as a "potential structural vulnerability."[33] In 2015, the SEC proposed additional rules regarding liquidity management for open-ended mutual funds.[34]

38. These liquidity risks are not just theoretical; they have caused real losses to mutual funds, and, thereby, real reputational losses to advisers. A study finds that "concentrated mutual fund sales forced by capital flows exert significant price pressure in equity markets,

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[31] Edelen, Roger, "Investor Flows and the Assessed Performance of Open-End Mutual Funds," *Journal of Financial Economics,* 1999, pp. 439–466 at p. 441, 452. The paper estimated the average amount of liquidity-motivated purchases to be 24% of fund assets per year and the average amount of liquidity-motivated sales to be 28% of fund assets per year.

[32] Cetorelli, Nicola, Duarte Fernando, and Thomas Eisenbach, "Are Asset Managers Vulnerable to Fire Sales?," The Federal Reserve Bank of New York's *Liberty Street Economics*, 2016.

[33] Financial Stability Board, "Proposed Policy Recommendations to Address Structural Vulnerabilities from Asset Management Activities," 2016, p. 10. The Financial Stability Board is an international body established to promote international financial stability by "coordinating national financial authorities and international standard-setting bodies as they work toward developing strong regulatory, supervisory and other financial sector policies." See http://www.fsb.org/about/#mandate.

[34] "SEC Proposes Liquidity Management Rules For Mutual Funds And ETFs," *SEC Press Release,* 9/22/15.

often resulting in transaction prices far from fundamental value."[35] Any fund that has sold assets at depressed prices will realize lower performance.

39. One notable example of these risks is the Third Avenue Focused Credit Fund, which closed in 2015. The fund announced its liquidation and halted any redemptions after facing some losses. Its reasoning for an orderly liquidation was "to create sufficient cash to pay anticipated redemptions without resorting to sales at prices that would unfairly disadvantage the remaining shareholders."[36] In this instance, the fund resorted to discontinue operations because of the impact of liquidity risk.

40. Other mutual funds have been forced to sell off assets due to large net redemptions. In 2015, the Sequoia Fund held over 30% of its assets in one company, Valeant Pharmaceuticals International, Inc.[37] Shares of Valeant fell 86% over the 12 months preceding March 2016, causing large losses for the Sequoia Fund. In response, the fund experienced net outflows of $300 million over a three-month period, leading the fund to sell 1.5 million shares in Valeant. This sale raised $800 million in cash to "[give] the fund a bit of a buffer as it likely continues to deal with outflows."[38]

41. During the 2008 financial crisis, money market funds experienced large investor outflows. Due to investments in Lehman Brothers commercial paper, on September 16, 2008, the price per share of The Reserve Primary Fund fell below $1.[39] Because such money market funds are designed to provide investors interest while maintaining a NAV of at least $1, falling below $1 was a major event. This led investors to redeem $40 billion from the fund, which caused The Reserve Primary Fund to freeze future redemptions.[40] In response, investors redeemed roughly $300 billion from prime money market funds in general, some of which did not even hold Lehman paper.[41] On September 19, 2008, the U.S. Treasury helped reduce the panic by insuring money market funds with a NAV of at least $0.995.[42] Although redemptions eventually slowed, the crisis substantially hurt advisers of money market funds, as discussed below.

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[35] Coval, Joshua and Erik Stafford, "Asset Fire Sales (and Purchases) in Equity Markets," *Journal of Financial Economics*, 2007, pp. 479–512 at p. 481.
[36] Stein, Charles, "Third Avenue Blocks Redemptions from Credit Fund Amid Losses," *Bloomberg*, 12/10/15.
[37] Linnane, Ciara, "Sequoia Fund Suffers Yet Another Blow from Valeant Stake," *MarketWatch*, 3/28/16.
[38] Linnane, Ciara, "Sequoia Fund Suffers Yet Another Blow from Valeant Stake," *MarketWatch*, 3/28/16.
[39] Mamudi, Sam and Jonathan Burton, "Money Market breaks the Buck, Freezes Redemptions," *MarketWatch*, 9/17/08.
[40] Mamudi, Sam and Jonathan Burton, "Money Market breaks the Buck, Freezes Redemptions," *MarketWatch*, 9/17/08.
[41] Wermers, Russ, "Runs on Money Market Mutual Funds," 2012. Available at SSRN: https://ssrn.com/abstract=2024282 or http://dx.doi.org/10.2139/ssrn.2024282.
[42] Wermers, Russ, "Runs on Money Market Mutual Funds," 2012. Available at SSRN: https://ssrn.com/abstract=2024282 or http://dx.doi.org/10.2139/ssrn.2024282.

42. Managing liquidity risk requires substantial effort and expense from the adviser. Further, because large net outflows can have a direct impact on the adviser by way of reputational losses, the adviser bears potentially large costs if a fund or multiple funds experience large net outflows. Should liquidity risk materialize and result in fund losses, the adviser can also face regulatory investigations and litigation. Therefore, advisers of retail funds pay strict attention to liquidity risk.

43. As described above, the Non-Retail Subadvised Funds typically serve as the funding vehicle for variable annuity products. As such, the Non-Retail Subadvised Funds face different redemption considerations than the At-Issue Funds. Depending on the variable annuity, investors may change their allocations a limited number of times each year. For example, the Prudential Premier Investment Variable Annuity, which offers the AST High Yield Fund, one of the Non-Retail Subadvised Funds, as an investment options, restricts how frequently investors can transfer their assets across funds.[43] In addition, it is also more difficult to redeem from variable annuity funds for cash.[44]

44. The portions of assets JPMIM manages for the Subadvised Funds are generally smaller than the At-Issue Funds to which the Plaintiffs compare them.[45] This is important when it comes to liquidity risks in that a given percentage outflow for a Subadvised Fund can be handled more easily than the same percentage outflow for an At-Issue Fund. As the amount of a security that has to be sold quickly increases, the price impact of a trade is likely to increase, which makes the sale of securities more costly. Mutual fund managers generally attempt to limit transactions in a security to only a fraction of the daily volume of that security, in order to avoid affecting the price.[46] If a fund is small, it is more likely that the amounts to be sold can be transacted within normal parameters.

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[43] Prudential Premier Investment Variable Annuities of Pruco Life of New Jersey Flexible Premium Variable Annuity Account Form N-4 Prospectus, filed 4/10/17, p. 28, "During the Accumulation Period you may transfer Account Value between Investment Options subject to the restrictions outlined below…. Once you have made 20 transfers among the Sub-accounts during an Annuity Year, we will accept any additional transfer request during that year only if the request is submitted to us in writing with an original signature and otherwise is in Good Order."

[44] "Variable Annuities: What You Should Know," *SEC Investor Publications*, 4/18/11, available at https://www.sec.gov/reportspubs/investor-publications/investorpubsvarannty htm.html.

[45] For example, as of fiscal year-end 2015, total net assets were $170 million for Pemberwick Fund, and total net assets were $11.10 billion for Short Duration Bond Fund. See Pemberwick Fund of FundVantage Trust Form N-1A Prospectus, filed 8/28/2015, p. 16; J.P. Morgan Income Funds of JPMorgan Trust II, Form N-CSR, filed 5/8/15, p. 279. See also, fiscal year 2015 Form N-CSRs for the At-Issue Funds and Subadvised Funds.

[46] Chernenko, Sergey and Adi Sunderam, "Liquidity Transformation in Asset Management: Evidence from the Cash Holdings of Mutual Funds," Working Paper No. w22391, *NBER*, 2016, p. 4, "Are these cash holdings large enough to fully mitigate any price impact externalities that funds may exert on other market participants? We provide two pieces of suggestive evidence that they are not. The first piece of evidence arises from the intuition that a monopolist internalizes its price impact. We show that funds that hold a larger fraction of the outstanding amount of the assets they invest in tend to hold more cash. This finding is consistent with such funds more fully internalizing the price impact of their trading in the securities they hold. Our second piece of evidence is at the fund family level. We show that funds that have significant

45. In depositions, JPMAM portfolio managers are explicit about these concerns. For instance, Mr. Swanson states that:

> The day-to-day, you know, cash flows can […] vary. The mutual funds, obviously, we have to worry a lot more about, you know, every day we have to expect there are going to be cash flows for the mutual funds […] Whereas, in some of the sub-advised accounts […], you might have cash flow, but generally, they're not going to be every day, and they're not going to vary.[47]

> But one thing I have to worry about in managing a mutual fund is there is a lot of concerns right now about liquidity risk, and I feel the portfolios we manage, we do a good job in having liquid portfolios in terms of we own.[48]

> …getting back to being a mutual fund with a lot of different shareholders, a wide variety of shareholders, if we get to the point where everybody decides, I want to get out of the bond market, so it has nothing to do with our performance, you have to be prepared to handle large outflows […] So I think that is, as a mutual fund where we can't control what the underlying shareholders want. If we have an institutional account, and even a sub-advisory account, if they need money, they're going to let us know; but oftentimes, they say, well, how – you know, how much time, you know, if I need this much from you, how long can it take. Now, sometimes they might say, no, I need this money in the next week, but they, you know, they might work with us in terms of how much time they need to get that money.[49]

46. Documents provided to the Board and fund prospectuses discuss the many ways JPMIM monitors and controls the liquidity of the funds it advises. [redacted][50] Other methods of managing liquidity risk include investing portions of the fund in liquid securities such as money market funds, cash, and treasury securities.[51] JPMIM also utilizes an uncommitted line of credit and inter-

holdings overlap with other funds in the same family hold more cash. This finding is consistent with the idea that these funds are more cautious about exerting price impact when it may adversely affect other funds in the family."

[47] Deposition of Douglas Swanson, 11/11/15 ("Swanson Deposition"), 90:20-91:11.

[48] Swanson Deposition, 94:14-19.

[49] Swanson Deposition, 95:9-96:8.

[50] "JPMorgan Funds Board of Trustees – Fixed Income Funds 15(c) Annual Report," 6/23/15, JPMIM02093163–3225 at 3175.

[51] "J.P. Morgan Funds – Management's Response to Section 15(c) Request Letter," 6/23/15-6/24/15, JPMIM02093763–3838 at 3801; Swanson Deposition, 94:11-25.

fund lending in order to meet liquidity needs.[52] If need be, JPMIM will resort to the sale of the fund's underlying securities, or even liquidate the entire fund if redemptions are significant enough.[53]

47. The At-Issue Funds' status as retail mutual funds exacerbates liquidity risk. A senior officer report noted a difference in redemptions between the At-Issue Funds and other types of funds, stating that, "the Funds must continuously issue and redeem their shares, making the Funds more difficult to manage than institutional and managed accounts which have more stable asset levels."[54]

B. Business Risks

48. With mutual fund complexes (such as the one encompassing the At-Issue Funds), affiliated advisers (such as JPMIM) are in the business of offering investment choices to investors. There are substantial costs associated with starting a new fund, and every new fund bears the risk of not succeeding. Even established funds can become unprofitable for an adviser (for example through changing investor demand) and may need to be liquidated or merged into other funds. Because of the up-front costs associated with creating a fund and the potential costs of failure, the benefits of a fund growing to be successful must be sufficient to motivate an adviser to launch a fund to begin with.

49. An adviser can also face losses because it decides that it should compensate investors for underperformance to preserve its reputation. For example, prior to the events in September 2008 discussed above, when money market funds threatened to "break the buck," money market funds were profitable. However, during the crisis numerous sponsors had to inject capital into the funds to save them.[55]

50. The adviser bears these business risks. While an adviser faces uncertainty about the response of investors to a newly offered product and expends considerable costs before the first retail investor purchases shares, subadvisory relationships are typically entered into for a product when that product is already known and marketed. For instance, when MetLife entered in a subadvisory relationship with JPMIM, that fund was already well-established and

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[52] "Minutes of a Meeting of the Board of Trustees/Directors of the J.P. Morgan Funds," 8/19/14-8/20/14, JPMIM00209183-9288 at 9262-9263; "Minutes of a Meeting of the Board of Trustees/Directors of the J.P. Morgan Funds," 8/16/16-8/17/16, JPMIM02172006–2091 at 2027–2030.

[53] "Memorandum RE: State of the J.P. Morgan U.S. Funds' Business," 6/15/14, JPMIM02091942–1961 at 1950.

[54] "Memorandum RE: Senior Officer Report," 8/19/15, JPMIM02092653–2661 at 2660.

[55] Luhby, Tami, "Rushing to save money-market funds," *CNN Money*, 9/19/08.

successful.[56] Similarly, both the AST High Yield Portfolio and the LVIP JPMorgan Mid Cap Value Managed Volatility Fund existed for several years before engaging JPMIM as a subadviser.[57] Further, if a subadvisory relationship ceases to be profitable for JPMorgan, it can exit that relationship. If a retail fund ceases to be profitable, JPMorgan has to incur the costs of liquidating or merging the fund, costs that are both financial and reputational. An adviser cannot simply walk away from an unprofitable fund as a subadviser can.

51. One can see the business risk borne by JPMIM by looking at the numerous changes in its fund lineup. Between January 2005 and December 2015, JPMIM created at least 102 new funds, liquidated at least 59 funds, and merged at least 51 funds into other funds.[58] As described above, the creation of each of these new funds carries the risk that the fund will not be successful. For example, the JPMorgan Europe Research Enhanced Equity Fund was created in September 2014 and liquidated in June 2015.[59] Similarly, the JPMorgan Dynamic Small Cap Core Fund was created in November 2007 and liquidated in December 2008.[60]

C. Operational Risks

52. Another important risk that the adviser is exposed to is operational risk. Operational risk is generally defined for financial institutions as "the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events."[61] This risk has grown in importance, as studies show that the increase in complexity of financial institutions has increased the risk of operational losses.[62] Advisers increasingly rely on data and models to manage funds, which introduces numerous ways in which mistakes can arise. For instance, models can be flawed, data can be corrupted, or systems can be compromised.

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[56] The inception date of the MetLife Core Bond Portfolio is April 28, 2008. JPMIM did not become the subadviser until January 7, 2013. See JPMorgan Core Bond Portfolio of Met Investor Series Trust Form N-1A Prospectus, filed 4/29/15, p. 5.

[57] The inception date of the AST High Yield Portfolio is December 31, 1993. JPMIM did not become a subadvisor until September 13, 2010. See Advanced Series Trust Form N-1A Prospectus, filed 4/15/15, p. 159 and Statement of Additional Information pp. 53-54. The inception date of the LVIP JPMorgan Mid Cap Value Managed Volatility Fund is May 1, 2001. JPMIM did not become the subadvisor until September 21, 2012. See LVIP JPMorgan Mid Cap Value Managed Volatility Fund of Lincoln Variable Insurance Products Trust Form N-1A Prospectus, filed 4/30/15, p. 14 and Statement of Additional Information p. 5; LVIP Columbia Value Opportunities Fund of Lincoln Variable Insurance Products Trust Form N-1A Prospectus, filed 4/15/10, p. 3.

[58] CRSP Mutual Fund Database.

[59] JPMorgan Trust I Form N-1A Prospectus, filed 2/26/15, p. 32; JPMorgan Trust I Form 497 Supplement to the Prospectus dated 5/1/15, filed 5/14/15.

[60] JPMorgan Trust I Form N-1A Prospectus, filed 10/28/08, p. 6; JPMorgan Trust I Form 497 Supplement to the Prospectus dated 11/1/08, filed 11/13/08.

[61] Basel Committee on Banking Supervision, "International Convergence of Capital Measurement and Capital Standards: A Revised Framework," June 2004, Part 2, Section V. A.

[62] Chernobai, Anna et al., "Business Complexity and Risk Management: Evidence from Operational Risk Events in U.S. Bank Holding Companies," Working Paper No. 16-16, *Federal Reserve Bank of Boston*, 2016.

Consistent with examples in the past of advisers compensating funds for losses associated with operational risk, advisers take steps to minimize this risk. Typically, advisers appoint personnel to monitor and mitigate potential avenues through which operational risks can occur.

53. Famous instances of realizations of model risk for mutual funds include the case of a spreadsheet error at one of the most famous funds at the time, Fidelity's Magellan Fund. In 1995, Fidelity's Magellan Fund estimated that investors would receive a distribution of $4.32 per share. It turned out that this number was arrived at in error. The omission of a minus sign in a spreadsheet caused the calculation to interpret a $1.3 billion capital loss as a $1.3 billion capital gain, resulting in the calculation being off by $2.6 billion.[63] The responsibility for such calculations typically lies with a fund's administrator or adviser, not with the fund's subadviser.

54. Related to operational risks is the risk created when funds enter into contracts with third-party service providers. For instance, funds enter in contracts with valuation services, brokers, and data services. Whenever a fund uses a third party for services, risks are involved. For instance, a valuation service might make mistakes. A broker might fail while there are uncompleted transactions. Data services may lose data. All these risks have to be assessed and managed. Some of these risks have become especially important as third parties become connected to the computer networks used by funds and hence might be vulnerable to hackers. An adviser will generally have direct responsibility in selecting and monitoring service providers. In contrast, a subadviser may share that responsibility with an adviser or may not have that responsibility at all.

55. As discussed in its annual reports, JPMorgan manages operational risk firm-wide.[64] As a result, the operational risks of JPMIM are monitored by a firm-wide operational risk organization and JPMIM benefits in its management of operational risk from the existence of a firm-wide operational risk management organization. Controls established within JPMIM to mitigate operational risks are reviewed by risk management at the line of business level and follow approaches put in place firm-wide.[65]

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[63] Godfrey, Kathy, "Computing Error at Fidelity's Magellan Fund," *The Risks Digest ACM Committee on Computers and Public Policy, Forum on Risks to the Public in Computers and Related Systems,* Vol. 16, Issue 72, 1/6/95, available at http://catless.ncl.ac.uk/Risks/16.72.html#subj1.1.

[64] J.P. Morgan Chase & Co., Form 10-K for the fiscal year ended December 31, 2015, filed 2/23/16, p. 144.

[65] J.P. Morgan Chase & Co., Form 10-K for the fiscal year ended December 31, 2015, filed 2/23/16, pp. 144–146; Telephone Interview with Judy Beyer, conducted 5/11/17.

56. The importance of operational risk management is emphasized by bank regulators. Capital requirements for large international banks are heavily dependent on the so-called Basel Framework. An important revision of that framework took place in 2004. This revision, generally called Basel II, introduced capital requirements for banks based on their operational risk. The definition of operational risk used in Basel II is the definition given at the beginning of this section. It excludes strategic and reputational risk, but it includes legal risk. With Basel II, banks are allowed to compute their operational risk capital requirement using three approaches that differ in complexity. The second approach was called the standardized approach, which provides an indication of the materiality of operational risk for asset management in banks. The approach divides banks into eight business lines, one of which is asset management. The capital requirement for operational risk for the asset management business line is 12% of the annual average of gross income from asset management over the last three years.[66] Large institutions like JPMorgan use a more sophisticated approach to calculate operational risk capital that estimates the distribution of losses due to operational risk for their different businesses.

57. Both the chances of the risk materializing and the magnitude of the damage when the risk does materialize differ between advisers and subadvisers. The materialization of operational risks at a fund managed through an advising relationship has the potential to have contagion effects, as an operational risk at a single fund can cause outflows throughout a complex. Subadvisers do not have that potential, as a risk at the subadviser level is much less likely to become known to the public. The materialization of an operational risk at the adviser level is also more likely to lead to litigation and regulatory inquiries than an operational risk at the subadviser level.

D. Pricing Risks

58. As discussed above, a mutual fund must calculate the NAV daily, which determines the price at which investors purchase or redeem shares each day. If the NAV is calculated incorrectly, then any share transactions that day occur at an improper price. Although not necessarily contractually obligated to do so, the adviser or administrator may compensate the fund for losses associated with these valuation mistakes in order to avoid potential litigation and to avoid potential reputational fallout.

[66] Basel Committee on Banking Supervision, "International Convergence of Capital Measurement and Capital Standards: A Revised Framework," June 2004, Part 2, Section V.

59. In order to calculate the NAV, a fund must first value each asset held. While many securities have straightforward prices (such as heavily-traded stocks on major exchanges) that can be provided by third-party services, other less liquid or more esoteric securities may be harder to price reliably. To deal with these situations, funds maintain a valuation policy, which dictates how prices are calculated.[67]

60. A fund's valuation policy may include using third-party data providers for some securities. Though it is typical for funds to be valued using data from third-party providers, these providers can make mistakes or rely on stale prices. Therefore, JPMIM fund portfolio managers monitor prices supplied by third-party data providers and contact these providers if potential problems with the prices are discovered. In his deposition, Mr. Swanson stated, "We could be looking through a portfolio and say, oh, this price looks a little off and challenge it."[68]

61. The role of the adviser in this valuation process differs from the role of the subadviser. For instance, the agreement with MetLife states that "The Subadviser shall provide assistance in determining the fair value of all securities and other investment/assets in the Portfolio as necessary."[69] The subadvisory agreement with Voya explicitly states that the subadviser is not responsible for the "Expenses of obtaining quotations for calculating the value of the Portfolio's net assets."[70] Ultimate responsibility for the pricing resides with the adviser and the fund's board. While a subadviser can assist with the valuation process, it is the adviser that bears ultimate responsibility to the fund and its board. As an adviser of funds in the JPM Fund Complex, JPMIM is responsible to "determine and declare a net asset value every day."[71] Deposition testimony reinforces that it is the adviser of the Subadvised Funds (and not JPMIM as subadviser) that is ultimately responsible for NAV and fair value calculations.[72]

E. Litigation Risks

62. Because of the functions they perform, mutual fund advisers are exposed to substantial litigation risks. Subadvisers, on the other hand, are generally not exposed to the

[67] "J.P. Morgan Funds- Management's Response to Section 15(c) Request Letter," 6/22/16-6/23/16, JPMIM02098457–8536 at 8520.
[68] Swanson Deposition, 161:22-24.
[69] Met Investors Series Trust Subadvisory Agreement, 1/7/13, p. 6.
[70] Voya JPMorgan Mid Cap Value Portfolio Subadvisory Agreement, 3/26/02, p. 5; Voya JPMorgan Mid Cap Value Portfolio Updated Subadvisory Agreement, 11/18/14, p. 4.
[71] Deposition of James Shanahan, 11/12/15, ("Shanahan Deposition") 126:7-24.
[72] Deposition of Lissette Resnick, 11/6/15, ("Resnick Deposition") 191:21-192:6; Shanahan Deposition, 202:20-203:5.

same types or magnitudes of litigation risks, due to the different level of responsibilities assumed in that role. While the costs associated with these risks are difficult to quantify, it is clear that such risks exist given the volume of lawsuits involving issues related to mutual funds.

63. In litigation brought under Section 36(b) of the Investment Company Act, it is the adviser (and not the subadviser) that is typically a party to the litigation. **Exhibit 3** lists all cases from 2005 to 2016 that I could identify—39 cases in total—in which an adviser and/or subadviser were named in excessive fee litigations under Section 36(b) of the Investment Company Act.[73] In all 39 cases, the fund adviser was a party to the case. In two of the cases, a subadviser affiliated with the fund adviser was also named, and in only one case was an independent subadviser named in the litigation.[74]

64. Many of the cases (17 of 39) in **Exhibit 3** were brought against an investment manager that allegedly retained excessive fees after contracting advisory services to a subadviser. Twelve of the 39 cases included allegations that a fund adviser performed similar services more cheaply as a subadviser for independent institutions.

65. Litigation risk grows as funds grow. Funds with large asset sizes that are advised by recognizable financial institutions are targeted in litigations at a high rate. Research into Section 36(b) litigation between 2000 and 2009 indicates that the strongest predictor of being the target of litigation was the size of the fund family: "funds in larger families were much more likely to be targeted than funds in smaller families."[75]

66. In JPMIM's role as subadviser to the Subadvised Funds, it faces less litigation risk due to the complex relationship between it and the funds' advisers. Subadvisory contracts are generally with financial institutions that a mutual fund adviser or its parent are likely to have repeated dealings with, which decreases the risk of litigation between advisers and subadvisers.

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[73] The list presented in **Exhibit 3** was compiled from the Coalition of Mutual Fund Investors ("CMFI") litigation tracker, ICI Mutual's report on "Section 36(b) Litigation Since Jones v. Harris," or via a keyword search of four docket research databases: Bloomberg Law, Courthouse News Service, Thomson Reuters Westlaw, and LexisNexis Courtlink.

[74] The sole case where an independent subadviser was named as a defendant was *Parthasarathy v. RS Investment Management.* The plaintiffs allege subadvisors to the RS Investment Management-managed funds unduly benefited from RS Investment Management's "participation in market time and late trading activities," which inflated the average daily net assets used to calculate the management fees. *Parthasarathy v. RS Investment Management, L.P., et al.,* Consolidated Amended Class Action Complaint, filed 5/16/05, pp. 8, 73-74.

[75] Curtis, Quinn and John Morley, "An Empirical Study of Mutual Fund Excessive Fee Litigation: Do the Merits Matter?," *Journal of Law, Economics, & Organization*, Vol 30, Issue 2, 2014.

F. Regulatory Risks

67. Mutual funds are subject to a complex regulatory regime. These regulations create compliance costs for the advisers and administrators and create risks associated with accidental lack of compliance. Although a subadviser may have some compliance responsibilities, they are generally lesser in scale and scope than the fund's adviser's compliance responsibilities.[76]

68. Some of the subadvisory agreements are explicit about the fact that compliance obligations of the subadviser differ from those of the adviser. For instance, the Voya agreement has the following clause:[77]

> The Subadviser and the Adviser acknowledge that the Subadviser is not the compliance agent for the Portfolio, and does not have access to all of the Company's books and records necessary to perform certain compliance testing.

69. Deloitte's *Global Risk Management Survey* found 48% of investment management companies considered regulatory compliance to be "extremely or very challenging" in 2014, up from 29% of respondents in 2012.[78] Regulatory compliance was also the risk type most frequently identified as likely to increase in importance over the next two years by the financial institutions surveyed.[79]

70. Because they are tightly regulated, advisers are subject to regulatory inquiries. Such inquiries can occur even when there is no indication that an adviser has failed to follow regulations. [redacted] Such inquiries are costly for the advisers and entail risks as well. In particular, regulators may decide to prohibit practices that were once viewed as acceptable, thus requiring changes in how mutual funds operate.

71. [redacted]:[80]

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[76] Deposition of Joseph Bertini, 5/4/17, ("Bertini Deposition") 129:5-20, 131:9-134:6.

[77] While the agreement also notes the subadviser will perform some compliance functions, the adviser is characterized as having ultimate responsibility (Voya JPMorgan Mid Cap Value Portfolio Subadvisory Agreement, 3/26/02, pp. 7-8, and Updated Voya JPMorgan Mid Cap Value Portfolio Subadvisory Agreement, 11/18/14, p. 6). See also, Bridge Builder Bond Fund Subadvisory Agreement, 8/1/13, pp. 7, 13; LVIP J.P. Morgan High Yield Fund Subadvisory Agreement, 4/30/10, p. 3.

[78] "Global Risk Management Survey, ninth edition — Operating in the new normal: Increased regulation and heightened expectations," *Deloitte University Press*, 2015, pp. 39–40.

[79] "Global Risk Management Survey, ninth edition — Operating in the new normal: Increased regulation and heightened expectations," *Deloitte University Press*, 2015, p. 48.

[80] "J.P. Morgan Funds – Management's Response to Section 15(c) Request Letter," 6/23/15-6/24/15, JPMIM02093763–3838, at 3823–3824.

[redacted]

72. Again, while the costs of these risks are hard to quantify, it is clear from the "market timing" investigations at the beginning of the 2000s that such risks exist. As can be seen in **Exhibit 4**, investment advisers were subject to significant monetary penalties in the form of settlements in the investigations. Note also that independent subadvisers were not subject to monetary penalties as a result of any of these investigations. In total, across 21 investment advisers, over $3 billion was paid to settle the cases. Further, investment advisers also lost assets under management as a result of the investigations and settlements.[81]

G. Reputational Risks

73. Compounding all of the risks outlined above is the risk of reputational damage following, among other things, any litigation, regulatory investigation, operational loss, or entrepreneurial failure. The Office of the Comptroller of the Currency considers that "Asset management activities are likely to produce a high level of reputation risk."[82] Importantly, when an asset management organization is part of a larger financial institution, the materialization of a reputational risk at the asset management organization can affect the reputation of the larger financial institution.[83]

[81] Qian, Meijun and Basak Tanyeri, "Litigations and mutual fund runs," 2015, Melbourne Business School, 2016 Financial Institutions, Regulation & Corporate Governance (FIRCG) Conference. Available at SSRN: https://ssrn.com/abstract=2735959.

[82] Comptroller of the Currency Administrator of National Banks, Comptroller's Handbook - Asset management, December 2000, p. 20

[83] Comptroller of the Currency Administrator of National Banks, Comptroller's Handbook - Asset management, December 2000, p. 18.

74. Reputation is extremely important in asset management because of the importance of trust in the industry. Evidence on the importance of trust is provided by a study showing that fund complexes that change ownership suffer strong outflows.[84] Investors trust mutual fund managers with their money. A recent study concludes that, "Managers may have knowledge of how to diversify or even ability to earn alpha, but *in addition* they provide investors peace of mind."[85] This benefit of asset management in the investor's mind is attached to the fund manager, to the fund complex, and to the financial institution of which the fund complex is part. Such a relationship is unlikely to form between an investor and a fund's subadviser, as the primary dealings of the investors are not with the subadviser but with the adviser and its affiliates.

75. Fund managers will often incur large expenses to reduce the risk of reputational losses. As discussed above, when money market funds threatened to "break the buck" at the height of the financial crisis in September 2008, numerous sponsors were forced to inject capital into the funds to save them. Between August 2007 and December 2009, 20 firms across the U.S. and Europe injected more than $12 billion into money market funds.[86] A study by the Federal Reserve Bank of Boston finds that between 2007 and 2011, 31 money market funds would have broken the buck without some form of support. The study states that "fund sponsors may be concerned about their reputation in the market place, loss of cross-selling opportunities, or the cost of potential investor lawsuits,"[87] indicating that reputational risk is indeed an important concern to financial institutions.

76. The possibility that a bank might end up supporting a fund or making payments to a fund is a form of risk considered by banking regulators. The Basel Committee calls this risk step-in risk.[88] Capital requirements for banks are evolving so that banks may have to set aside

[84] Kostovetsky, Leonard, "Whom do you trust? Investor-advisor relationships and mutual fund flows," *Review of Financial Studies*, 2015.

[85] Gennaioli, Nicola, Andrei Shleifer, and Robert Vishny, "Money doctors," *The Journal of Finance*, Vol. 70, 2015, pp. 91–114 at p. 92.

[86] Laise, Eleanor, "'Breaking the Buck' Was Close for Many Money Funds," *Wall Street Journal*, 8/10/10.

[87] Brady, Steffanie A., Kenechukwu E. Anadu, and Nathaniel R. Cooper, "The Stability of Prime Money Market Mutual Funds: Sponsor Support from 2007 to 2011," *Federal Reserve Bank of Boston Risk and Policy Analysis Unit*, 8/13/12, at p. 7.

[88] Basel Committee on Banking Supervision, "Consultative document, Guidelines, Identification and management of step-in-risk," March 2017, p. 4, "Step-in risk' is the risk that a bank decides to provide financial support to an unconsolidated entity that is facing stress, in the absence of, or in excess of, any contractual obligations to provide such support. The main reason for step-in risk might be to avoid the reputational risk that a bank might suffer were it not to provide support to an entity facing a stress situation."

capital for such eventualities, which would increase their cost of business and decrease the profitability of activities that carry reputational risk.[89]

77. Another example of reputational fallout can be seen in Putnam Investments following the market timing scandal discussed above. After Putnam's improper trading became public, resulting in a $110 million settlement with the SEC, investors withdrew more than $28 billion from Putnam's funds in a six-month period.[90]

78. In September 2014, Bill Gross, co-founder of PIMCO, abruptly left the company after more than 40 years.[91] During the subsequent months, investors pulled substantial assets from the company, including $100 billion from the company's Total Return Fund.[92] PIMCO was "still smarting from the so-called Bond King's departure, reputation-wise as well as in terms of assets under management," a year later.[93]

79. Such reputational fallout has been studied by researchers. Academic studies have found that there are substantial withdrawals from funds following investigations or sanctions by regulators. Across such adverse events, investors withdrew 19% of a fund's pre-scandal assets. Investors withdrew even more if the scandal was covered extensively by the *Wall Street Journal*.[94]

VI. To the Extent (If Any) that JPMIM Benefits from Economies of Scale, it has Mechanisms in Place to Share these Economies with Investors

80. Economies of scale exist for a company if average per-unit costs decrease as the company grows.[95] Therefore, in order to analyze whether an investment adviser realizes economies of scale as a mutual fund's assets grow, one would need to analyze the adviser's

[89] Basel Committee on Banking Supervision, "Consultative document, Guidelines, Identification and management of step-in-risk," March 2017, p. 2, "Capital requirements for banks' equity investment in funds, issued in December 2013, specified a consistent and risk-sensitive capital treatment for banks' investments in the equity of funds, reflecting both the risk of the fund's underlying investments and its leverage. This framework addresses risks associated with banks' interactions with such shadow banking entities by considering the risk of underlying investments and leverage, and ensuring that banks are sufficiently capitalised in that respect. The step-in risk framework would supplement the existing provisions in addressing the broader risks associated with banks' involvement in funds, rather than only risks associated with the ownership of a fund's equity shares."

[90] Atlas, Riva D., "Former Chief of Putnam to Receive $78 Million," *The New York Times*, 6/11/04.

[91] Goldstein, Matthew, "Bill Gross, King of Bonds, Abruptly Leaves Mutual Fund Giant PIMCO," *The New York Times*, 9/26/14.

[92] Diamond, Randy, "A year later, PIMCO still feels effect of Gross' exit," *Pensions and Investments*, 9/21/15.

[93] Diamond, Randy, "A year later, PIMCO still feels effect of Gross' exit," *Pensions and Investments*, 9/21/15.

[94] Choi, Stephen and Marcel Kahan, "The Market Penalty for Mutual Fund Scandals," *Boston University Law Review*, 2007, "We find, in our baseline estimates, that scandal funds on average suffer abnormal outflows of 19% of their pre-scandal assets in the year following a scandal."

[95] Mankiw, N. Gregory, *Principles of Microeconomics, 2nd Edition*, 2000, p. 284.

costs of operating a fund. While measuring and analyzing increases in revenue as funds grow is relatively straightforward, analyzing the corresponding increase in costs is difficult.

81. Importantly, a proper economic analysis should consider not only realized costs, but also potential costs arising from the risks discussed in the previous section. Even if direct costs decrease as a percentage of assets as a fund expands, the potential costs from risk exposure may increase at a faster pace.

82. As discussed in this section, there is no consensus among practitioners or academics on how costs for an adviser change as a fund's asset levels increase. Even so, there are patterns in the fees and performance of mutual funds that are consistent with economies of scale not being material in the mutual fund industry except for the smallest funds.

A. There is No Consensus on the Size and Nature of Economies of Scale in the Mutual Fund Industry

83. In order for economies of scale to be fully assessed for a company or industry, costs must be carefully analyzed. Due to the numerous complexities in obtaining cost data for mutual funds, I am not aware of any academic study that has been able to investigate how an adviser's costs change as funds it manages grow. Instead, other indirect ways of looking at economies of scale have been investigated, and no consensus about economies of scale in general has been reached. Studies have focused on the relation between size and performance and on the relation between size and fees.[96]

84. Some studies have used fees charged by mutual funds as a proxy for costs.[97] The literature that examines the relation between fees and size generally finds that fees fall as assets grow, but the decrease in fees is largest for changes in assets under management for smaller funds and is generally insignificant or non-existent for larger funds. This evidence is therefore consistent with the idea that any economies of scale for mutual funds dissipate as funds reach a mature size.[98]

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[96] Further, an analysis focused solely on assets under management may be missing other important dimensions of the scale of a mutual fund.

[97] See, for example, the following studies that use fees charged to investors in their analyses: Latzko, David A., "Economies of Scale in Mutual Fund Administration," *Journal of Financial Research*, 1999; Latzko, David A., "Mutual Fund Economies of Scale: A Longitudinal Study, 1993-2011," JAFR Vol II, 2013; and Elton, Edwin J. et al., "Does Size Matter? The Relationship Between Size and Performance," Fordham University Schools of Business *Research Paper No.* 1826406, 2011.

[98] See, for example, Latzko, David A., "Economies of Scale in Mutual Fund Administration," *Journal of Financial Research*, 1999, p. 2, "Average costs diminish over the full range of fund assets; however, the really rapid decrease in average costs is exhausted by about $3.5 billion in fund assets."

85. One can also look at the evolution of the U.S. mutual fund industry for evidence of economies of scale. If economies of scale were sufficiently impactful, we would expect the industry to become more concentrated so firms could take advantage of pooling resources. This pattern has not been observed in the mutual fund industry. The number of funds in the market has increased over time, but the market share of complexes has not increased.[99]

86. An important factor that affects the costs of funds is that the number of funds within a given fund category keeps increasing. This means that funds have to compete more with other funds, which makes it harder to outperform the market. A recent study finds large diseconomies of scale in performance at the industry level, which arise because "as the size of the active mutual fund industry increases, the ability of any given fund to outperform passive benchmarks declines."[100] Because the skills of managers improve over time in the industry, it means that it is harder for managers to do better than average. Hence, as the industry grows, it can become more costly for managers just to stay in place in rankings, which means that their costs increase. As the authors put it, "The active management industry today is bigger and more competitive than it was 30 years ago, so it takes more skill just to keep up with the rest of the pack."[101]

87. Another factor that may counteract potential economies of scale is that certain risks (such as liquidity, operational, litigation, and reputational risks) increase in magnitude as funds get larger. For example, as discussed in paragraph 65 above, the best predictor of being the target of litigation is being in a large fund family.[102]

B. JPMIM has Instituted Numerous Mechanisms to Share Potential Economies of Scale

88. To the extent that economies of scale do exist for JPMIM's mutual fund business, JPMIM has set up mechanisms through which it shares these economies with investors.

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[99] Khorana, Ajay and Henri Servaes, "What Drives Market Share in the Mutual Fund Industry?," *Review of Finance*, 2012, "This article examines competition and investor behavior in the mutual fund industry for the universe of US mutual funds during 1976–2009. Over this period, industry assets increased by a factor of 200, the number of active fund families quadrupled, and the average market share of a family declined by four-fifths."

[100] Pástor, Ľ., Stambaugh, R. F., & Taylor, L. A., "Scale and Skill in Active Management," *Journal of Financial Economics*, 116(1), 2015, p. 23-45.

[101] Pástor, Ľ., Stambaugh, R. F., & Taylor, L. A., "Scale and Skill in Active Management," Journal of Financial Economics, 116(1), 2015, p. 23-45.

[102] Curtis, Quinn and John Morley, "An Empirical Study of Mutual Fund Excessive Fee Litigation: Do the Merits Matter?," Journal of Law, Economics, & Organization, Vol 30, Issue 2, 2014, "Our most basic finding is that although fees had some ability to predict which funds would be targeted, the strongest predictor of targeting was family size: funds in larger families were much more likely to be targeted than funds in smaller families."

1. Pricing to Scale

89. When JPMIM launches a new fund, the fund's fees are established under the assumption the funds will reach a certain asset level.[103] [redacted].[104]

90. [redacted].[105] [redacted] By pricing to scale, JPMIM shields investors from potential excess costs associated with younger and smaller funds and shares potential economies of scale with investors as the fund matures.

2. Expense Caps and Fee Waivers

91. Another tool used by JPMIM is expense caps, which result in fee waivers when management or administrative fees exceed the predefined maximums. Similar to pricing to scale, such mechanisms allow JPMIM to ensure investors do not pay high fees (as a percentage of total assets) when the fund is small and can reduce fees for larger funds as well. JPMIM also uses fee waivers to reduce fees below contractually allowed fees.

92. JPMIM uses expense caps as a primary mechanism to ensure its funds are priced competitively: [redacted] Expense caps allow JPMIM to pass on benefits to investors prior to an individual fund's achievement of scale and ensure fees are more consistent across market conditions.[107]

[103] Deposition of Brian Shlissel, 3/29/17, ("Shlissel Deposition") 218:6-18; "Memorandum RE: State of the J.P. Morgan U.S. Funds Business," 6/18/16, JPMIM02098372–8394 at 8381–8382.
[104] "Memorandum RE: JP Morgan Funds Profitability, Exhibit 3," 6/10/16, JPMIM02099300–358.
[105] "Memorandum RE: JP Morgan Funds Profitability," 6/10/16, JPMIM02099300–358 at 9305.
[106] "Memorandum RE: State of the J.P. Morgan U.S. Funds' Business," 6/14/15, JPMIM02093678–3702 at 3690.
[107] "Memorandum RE: State of the J.P. Morgan U.S. Funds' Business," 6/14/15, JPMIM02093678–3702 at 3690, "This allows us to pass on the benefits of economies of scale to our shareholders prior to a Fund reaching scale and provide our shareholders with fee consistency even in declining markets."

93. **Exhibit 5** summarizes the contractual advisory fees, advisory fee waivers, and effective advisory fees for the At-Issue Funds.[108] As shown in the exhibit, between 2013 and 2016, JPMIM reduced the advisory fees paid by investors through waivers for all seven of the At-Issue Funds. The fee waivers on the funds reduced expenses by as many as five basis points.

3. Improvements in Services and Infrastructure

94. Another way that JPMIM shares economies of scale with investors is by providing higher quality services and improving the infrastructure that supports the funds it manages.[109] In its annual State of the J.P. Morgan U.S. Funds' Business memorandum, JPMIM describes some of these enhancements in a section entitled "Initiatives to Grow the Funds' Business and Enhance Quality of Services" and elsewhere in the same memorandum.[110]

4. Administrative Fee Breakpoints

95. JPMIM, through JPMFM, has instituted breakpoints in the administrative fee schedules.[111] These breakpoints lower JPMIM's fees as the funds it manages increase in size.

96. For each of the At-Issue Funds, the administration fee breakpoints function in the same way. JPMIM is compensated at the rate of 0.15% of assets for the first $25 billion managed at the fund complex level (excluding money market funds and certain funds of funds). Then, for any remaining assets under management in excess of $25 billion, JPMIM receives compensation at the marginal rate of 0.075%.[112] For the year ending June 30, 2015, the effective rate for all funds in the JPM Fund Complex, including the At-Issue Funds, was an administration fee of 0.08% of each fund's average daily net assets (not counting fee waivers or reimbursements).[113]

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[108] **Exhibit 5** does not reflect waiver of other fees, such as administration fee waivers.
[109] Shlissel Deposition,219:19-24.
[110] "Robert L. Young Memo to the Board RE: State of the J.P. Morgan U.S. Funds' Business," 6/10/12, JPMIM00000004-0022; "Robert L. Young Memo to the Board RE: State of the J.P. Morgan U.S. Funds' Business," 5/27/13, JPMIM00002421-2439; "Robert L. Young Memo to the Board RE: State of the J.P. Morgan U.S. Funds' Business," 6/15/14, JPMIM02091942-1961; "Robert L. Young Memo to the Board RE: State of the J.P. Morgan U.S. Funds' Business," 6/14/15, JPMIM02093678-3702; "Robert L. Young Memo to the Board RE: State of the J.P. Morgan U.S. Funds' Business," 6/18/16, JPMIM02098372-8394.
[111] JPMFM, Schedule B to the Administration Agreement, Amended as of 6/21/12.
[112] JPMFM, Schedule B to the Administration Agreement, Amended as of 6/21/12. See also "Senior Officer Report for the J.P. Morgan Funds Board of Trustees," 8/17/16, JPMIM02096081–6096 at 6088.
[113] J.P. Morgan Large Cap Funds of JPMorgan Trust II Form N-CSR, filed 9/3/15, p. 100.

Executed this 26th of May, 2017

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Appendix A

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UNDERGRADUATE STUDIES

University of Neuchâtel, Switzerland, Licence es Sciences Économiques, 1975.

GRADUATE STUDIES

London School of Economics, 1975-1976, Visiting Graduate Student.

Massachusetts Institute of Technology (MIT), 1976-1980, Ph.D. in Economics.

ACADEMIC APPOINTMENTS

Ohio State University, Everett D. Reese Chair of Banking and Monetary Economics, 1996 to present.

University of Southern California, Visiting Professor, 2007.

University of Chicago, Visiting Professor, Stigler Center, 2003-2004.

Northwestern University, Visiting Scholar, Kellogg School of Management, 2003-2004.

Harvard University, Business School, August 1996 to July 1997, Bower Fellow.

Ohio State University, Director of the Dice Center for Research in Financial Economics, 1995 to present.

Ohio State University, Ralph Kurtz Chair in Finance, 1993-1996.

Ohio State University, Riklis Chair in Business and its Environments, 1988-1993.

Ohio State University, Professor of Finance, 1985 to present.

University of Chicago, Visiting Professor of Finance, 1986-1987.

Massachusetts Institute of Technology, Visiting Associate Professor of Finance, Fall 1985.

Ohio State University, Associate Professor of Finance, 1983-1985.

University of Rochester, Assistant Professor of Finance and Economics, 1980-1983.

OTHER POSITIONS

Research Associate, National Bureau of Economic Research (Asset Pricing Group and Corporate Finance Group).

Director, NBER Group on the Risks of Financial Institutions, 2005 to present.

Chairman, Scientific Council, Swiss Finance Institute, 2006 to present.

Finance Research Advisory Committee, Office of Financial Research, U.S. Treasury, 2016 to present.

Board of Directors, American Finance Association, 1988 to 2000, 2002 to 2006.

Consultant to the World Bank, the IMF, the NYSE, Federal Reserve Bank of New York, corporations, and law firms.

Expert testimony in federal courts, state courts, and domestic and international arbitrations.

Taught executives in Europe, Asia and North America (open enrollment as well as for corporations, courses on risk management, banking, derivatives, corporate valuation, investments).

Advisory Committee, Morningstar, 2000-2002.

Director, Banque Bonhôte, 2002 to present.

Director, Wegelin Fund Management, 1999 to 2010.

President, Gamma Foundation, 2002 to 2013.

Director, Community First Financial Group, Inc., 2001 to 2010.

Director, Peninsula Banking Group, Inc., 2001 to 2010.

Trustee, Global Association of Risk Professionals, 2002 to present; executive committee, 2004 to present; chair of governance committee, 2011 to present.

Chairman, Financial Risk Management Examination Certification Committee, Global Association of Risk Professionals, 2002 to present.

Chairman, New York Federal Reserve Bank/GARP Global Risk Forum (2011, 2013), Bank of England/GARP Global Risk Forum (2012, 2014), Hong Kong Monetary Authority/GARP Global Risk Forum (2013, 2015).

International Advisory Committee, NCCR, 2002 to 2011.

External Reviewer, London Business School Finance Department, 2005.

Financial Advisory Roundtable (FAR), Federal Reserve Bank of New York, 2006 to 2010.

Guest Contributor, Harvard Law School Corporate Governance Blog.

Squam Lake Group, member, 2008 to present.

Senior Academic Fellow, Asia Bureau of Finance and Economic Research, 2012 to present.

Fellow, Wharton Center for Financial Institutions, 2013 to present.

HONORS, SCHOLARSHIPS AND FELLOWSHIPS

Advanced Researcher Fellowship, Swiss National Science Foundation, 1978-1980.

Dean's Research Professorship, Ohio State University, Spring 1984.

Pacesetter Research Award, Ohio State University, April 1986.

President-Elect (1993) and President (1994), International Economics and Finance Society.

Docteur Honoris Causa, University of Neuchâtel, Switzerland, 1998.

Eastern Finance Association Scholar Award, 1998.

Selected keynote speeches: ABFER, Asia-Pacific Finance Association, Bank of the Netherlands Governance Conference, Bocconi Derivatives Annual Conference, Drexel Corporate Governance Conference, Eastern Finance Association, European Corporate Finance Institute, European Finance Association, Financial Management Association, European Financial Management Association, Financial Management Association European Conference, FDIC Annual Conference, Rising Stars Conference, Fourth Annual Conference on Asia-Pacific Financial Markets of the Korean Securities Association, French Finance Association, German Finance

Association, Infiniti Conference, Notre Dame/SEC Conference, Northern Finance Association, Swiss Banking Association 100th Anniversary Conference, Western Finance Association, World Finance Conference, China International Conference in Finance.

Assurant Lecture, Georgia Tech University, 2004.

Fellow, Financial Management Association, 2000.

Fellow, American Finance Association, 2005.

Fellow, European Corporate Governance Institute, 2005.

Vice-President (2002), Program Chair, (2003), President (2004), Western Finance Association.

Vice-President (2002), President-elect (2003), President (2004), American Finance Association.

Who's Who in Banking and Finance; Who's Who in Economics.

Jensen Prize for best article in Corporate Finance in the Journal of Financial Economics, 2000, 2008; runner-up, 2011.

William F. Sharpe Award for the best paper published in the Journal of Financial and Quantitative Analysis during the year 2003.

Selected by the magazine Treasury and Risk Management as one of the 100 most influential people in finance (June 2004).

René M. Stulz Scholar Development Fund, created in 2005 by former Ph.D. students.

Fama/DFA Prize for best article in Capital Markets and Asset Pricing in the Journal of Financial Economics, 2005.

Nominated for a Brattle Prize for best paper in Corporate Finance in the Journal of Finance in 2005.

Risk Who's Who, Charter Member, 2006.

Best paper, First Asian-Pacific Capital Markets Conference, Seoul, 2006.

Outstanding Academic Contribution to Corporate Governance Award, Drexel University, 2009.

Risk Manager of the year award, Global Association of Risk Professionals, 2009.

Swiss Finance Institute/Banque Privée Espirito Santo Prize 2010.

Trailblazer in Finance Award, 2014.

Reuters, Highly-Cited Researchers, 2014 onwards.

Ohio State University, Distinguished Scholar Award, 2016.

CONGRESSIONAL TESTIMONY

"Over-the-Counter Derivatives Markets Act of 2009," testimony to the House of Representatives Committee on Financial Services, 2009.

"Oversight of the Mutual Fund Industry: Ensuring Market Stability and Investor Confidence," Subcommittee on Capital Markets and Government Sponsored Enterprises, House of Representatives Committee on Financial Services, 2011.

BOOKS

Risk Management and Derivatives, Southwestern College Publishing, 2003.

Handbook of the Economics of Finance, volume 1, edited with George Constantinides and Milton Harris, North-Holland, 2003.

Handbook of the Economics of Finance, volume 2, edited with George Constantinides and Milton Harris, Elsevier, 2013.

International Capital Markets, 3 volumes, edited with Andrew Karolyi, Edward Elgar, 2003.

Readings for the Financial Risk Manager, edited with Richard Apostolik, Wiley, 2004.

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The Risks of Financial Institutions, edited with Mark Carey, University of Chicago Press, 2006.

The Squam Lake Report: Fixing the Financial System, co-authored with the Squam Lake Group, Princeton University Press, 2010.

PUBLISHED PAPERS

"On the Effects of Barriers to International Investment," Journal of Finance, 1981, v36(4), 923-934; reprinted in Emerging Markets, Geert Bekaert and Campbell R. Harvey, ed., Edward Elgar Publishing, 2004, 1-36.

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"Options on the Minimum or the Maximum of Two Risky Assets: Analysis and Applications," Journal of Financial Economics, 1982, v10(2), 161-185, reprinted in Options Markets, vol. 2, George Constantinides and A. G. Malliaris, eds., Edward Elgar Publishing, 2001.

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"Currency Preferences, Purchasing Power Risks and the Determination of Exchange Rates in an Optimizing Model," Journal of Money, Credit and Banking, 1984, v16(3), 302-316; reprinted in Monetary Policy and Uncertainty, Manfred J. M. Neumann, ed., Nomos, 1986.

"Pricing Capital Assets in an International Setting: An Introduction," Journal of International Business Studies (Winter 1984), 55-73; reprinted in International Financial Management: Theory and Applications, Donald R. Lessard, ed., John Wiley & Sons, 1985.

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"An Analysis of Secured Debt," with Herb Johnson, Journal of Financial Economics, 1985, v14(4), 501-522, reprinted in The Debt Market, vol. 3, Steve A. Ross, editor, Edward Elgar, 2000.

"The Determinants of Firm's Hedging Policies," with Clifford W. Smith, Journal of Financial and Quantitative Analysis, 1985, v20(4), 391-406; reprinted in Studies in Financial Institutions: Commercial Banks, C. James and C.W. Smith, eds., McGraw Hill, 1993, and in Corporate Hedging in Theory and Practice: Lessons from Metallgesellschaft, Christopher L. Culp and Merton H. Miller, eds., Risk Publications, London, 1999.

"Asset Pricing and Expected Inflation," Journal of Finance, 1986, v41(1), 209-224.

"Risk Bearing, Labor Contracts and Capital Markets," with Patricia B. Reagan, Research in Finance, 1986, v6, 217-232.

"Interest Rates and Monetary Policy Uncertainty," Journal of Monetary Economics, 1986, v17(3), 331-348.

"Time-Varying Risk Premia, Imperfect Information and the Forward Exchange Rate," International Journal of Forecasting, 1987, v3(1), 171-178.

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"The Pricing of Options with Default Risk," with Herb Johnson, Journal of Finance, 1987, v42(2), 267-280.

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"Capital Mobility and the Current Account," Journal of International Finance and Money, 1988, v7(2), 167-180.

"The Eurobond Market and Corporate Financial Policy: A Test of the Clientele Hypothesis," with Yong Cheol Kim, Journal of Financial Economics, 1988, v22(2), 189-205.

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"The Pricing of Stock Index Options in General Equilibrium," with Warren Bailey, Journal of Financial and Quantitative Analysis, 1989, v24(1), 1-12.

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"A Test of the Free Cash Flow Hypothesis: The Case of Bidder Returns," with Ralph A.Walkling and Larry H. Lang, Journal of Financial Economics, 1991, v29(2), 315-335.

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"Industry Contagion Effects of Bankruptcy and Firm Size," with Larry Lang, in Ed Altman, ed., Bankruptcy and Distressed Restructurings, Business One Irwin, 1992, 215-221.

"Contagion and Competitive Intra-Industry Effects of Bankruptcy Announcements," with Larry Lang, Journal of Financial Economics, 1992, v32(1), 45-60.

"Global Financial Markets and the Risk Premium on U.S. Equity," with K.C. Chan and Andrew Karolyi, Journal of Financial Economics, 1992, v32(2), 137-168.

"Portfolio Management and Exchange Rate Risks: New Theoretical and Empirical Perspectives," with Warren Bailey and Edward Ng, S. Khoury and A. Ghosh, eds., Recent Developments in International Banking and Finance, 1992, v6, 230-248.

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EDITORIAL AND REFEREEING ACTIVITIES

Advisory Editor, Journal of Investment Management, 2003 to present.

Advisory Editor, Journal of Financial Economics, 2000 to present.

Advisory Editor, Journal of Financial Services, 1999 to present.

Editor, Journal of Finance, 1988 to 2000.

Editor, Corporate Finance Abstracts, Social Science Research Network, 1998 to present.

Editor, Journal of Financial Economics, 1982 to 1987.

Board of Editors, Journal of Banking and Finance, 2008.

Co-Editor, Banking and Financial Institutions Abstracts, Social Science Research Network, 1998 to present.

Co-Editor, Financial Markets and Portfolio Management, 1999 to present.

Associate Editor, Journal of Risk, 2006 to present.

Board of Editors, Japan and the World Economy, 2006 to present.

Advisory Editor, The Review of Finance, 2003 to 2009.

Advisory Editor, Journal of Economic Perspectives, 2006 to 2008.

Associate Editor, Journal of Economic Perspectives, 2003 to 2005.

Associate Editor, Journal of Financial Abstracts, 1994 to 1998.

Associate Editor, Journal of Financial Economics, 1988 to 1999.

Associate Editor, Journal of International Finance and Accounting, 1988 to present.

Associate Editor, Global Finance Journal, 1988 to 2015.

Associate Editor, Journal of International Financial Markets, Institutions and Money, 1989 to present.

Associate Editor, Journal of Fixed Income, 1991 to present.

Associate Editor, Journal of International Trade and Finance, 1992 to present.

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Associate Editor, Journal of Financial and Quantitative Analysis, 1983-1985.

Acted as an ad hoc referee for AER, JIE, JAE, JFE, JME, JMCB, JFQA, QJE, JF, JB, JPE, Canadian Journal of Economics, Management Science, Marketing Science, Journal of International Money and Finance, Journal of International Business Studies, the Canadian NSF and the NSF.

Editorial Board, Journal of Financial Intermediation, 2013 to present.

Appendix B

Deposition and Trial Testimony of René M. Stulz During the Past Four Years

Case Name:	Dodona I, LLC et al. v. Goldman Sachs & Co., et al.
Case No.:	Case No. 10-CV-07497 (United States District Court, Southern District of New York)
Date of Testimony:	June 2013 (Deposition), February 2014 (Deposition)

Case Name:	In re BP p.l.c. Securities Litigation
Case No.:	Case No. 4:10-MD-02185 (United States District Court, Southern District of Texas, Houston Division)
Date of Testimony:	September 2013 (Deposition), March 2014 (Deposition)

Case Name:	In Re China MediaExpress Inc.
Case No.:	Case No. 11 Civ. 0804 (VM/GWG), United States District Court, Southern District of New York
Date of Testimony:	May 2014 (Deposition)

Case Name:	Postova Banka, A.S. and Istrokapital SE, Claimants, and The Hellenic Republic, Respondent
Case No.:	Icsid Case No. ARB/13/8
Date of Testimony:	September 2014 (Hearing)

Case Name:	Plumbers & Pipefitters National Pensions Fund, et al. v. Michael J. Burns et al.; Hawaii Ironworkers Annuity Trust Fund v. Bernard N. Cole et al.
Case No.:	No. 3; 10-cv-00371-JGC (United States District Court, Northern District of Ohio)
Date of Testimony:	May 2015 (Deposition)

Appendix B

Case Name: In Re Delcath Systems, Inc. Securities Litigation
Case No.: Case No. 13-CV-3116 (LGS) (United States District Court, Southern District of New York)
Date of Testimony: January 2015 (Deposition)

Case Name: National Australia Bank Limited and TSL (USA), Inc., v. Goldman Sachs & Co.
Case No.: FINRA Dispute Resolution No. 12-04099
Date of Testimony: April 2015 (Arbitration Hearing)

Case Name: In Re The Bear Stearns Companies, Inc. Securities, Derivative, and Erisa Litigation
Case No.: Case No. 09 Civ. 8161 (RWS)
Date of Testimony: June 2015 (Deposition)

Case Name: FutureSelect Portfolio Management, Inc., v. Tremont Group Holdings, Inc.
Case No.: Superior Court of the State of Washington. Court of Appeals No. 68130-3-I
Date of Testimony: September 2015 (Deposition), November 2015 (Trial)

Case Name: Federal Home Loan Mortgage Corporation v. Deloitte & Touche LLP.
Case No.: Case No. 1:14-cv-23713-UU, United States District Court Southern District of Florida, Miami Division
Date of Testimony: November 2015 (Deposition)

Case Name: In Re MF Global Holdings Limited Investment Litigation, Relating to The Commodities Customer Class Action; Sapere CTA Fund, L.P. vs. Corzine, et al.; Tavakoli, as Litigation Trustee of the MF Global Litigation Trust v. Corzine, et al.; and U.S. Commodity Futures Trading Commission v. MF Global Holdings Ltd, et al.
Case No.: Case No. 1:11-cv-07866, United States District Court, Southern District of New York
Date of Testimony: November 2015 (Deposition)

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Case Name: Basis Yield Alpha Fund (Master) v. The Goldman Sachs Group, Inc. et al.
Case No.: Case No. 652996/2011, Supreme Court of the State of New York, County of New York
Date of Testimony: April 2016 (Deposition)

Case Name: In re Barclays Bank PLC Securities Litigation
Case No.: No. 1:09-cv-01989-PAC, United States District Court, Southern District of New York
Date of Testimony: April 2016 (Deposition)

Case Name: In re Petrobras Securities Litigation
Case No.: No. 14-cv-9662-JSR, United States District Court, Southern District of New York
Date of Testimony: June 2016 (Deposition)

Appendix C
Documents Considered by René Stulz, Ph.D.

Case Documents

1. *Nancy Goodman, et al. v. J.P. Morgan Investment Management, Inc. et al.*, Complaint, filed December 22, 2015
2. *Campbell Family Trust, et al. v. J.P. Morgan Investment Management, Inc., et al.*, Complaint, filed October 16, 2015

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Appendix C
Documents Considered by René Stulz, Ph.D.

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Appendix C
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Appendix C
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Appendix C
Documents Considered by René Stulz, Ph.D.

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Appendix C
Documents Considered by René Stulz, Ph.D.

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Appendix C
Documents Considered by René Stulz, Ph.D.

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Appendix C
Documents Considered by René Stulz, Ph.D.

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404. JPMIM00404045–4055
405. JPMIM00404056–4070
406. JPMIM00404072–4077
407. JPMIM00404078–4083
408. JPMIM00404084–4089
409. JPMIM00404090–4095
410. JPMIM00404106–4150
411. JPMIM00404151–4189
412. JPMIM00404190–4222
413. JPMIM00404236–4256
414. JPMIM00404257–4292
415. JPMIM00404293–4334
416. JPMIM00404335–4379
417. JPMIM00404380–4419
418. JPMIM00404421–4443
419. JPMIM00404477–4566
420. JPMIM00404567–4649
421. JPMIM00404650

Appendix C
Documents Considered by René Stulz, Ph.D.

422. JPMIM00404651
423. JPMIM00404652
424. JPMIM00404653
425. JPMIM00404654–4660
426. JPMIM00404661–4671
427. JPMIM00404672–4679
428. JPMIM00404680–4686
429. JPMIM00404687
430. JPMIM00404688
431. JPMIM00404689
432. JPMIM00404700–4709
433. JPMIM00404710–4711
434. JPMIM02065074–5385
435. JPMIM02091076–1332
436. JPMIM02091333–1712
437. JPMIM02091713–1915
438. JPMIM02091916–2300
439. JPMIM02092301–2440
440. JPMIM02092441–2508
441. JPMIM02092509–2517
442. JPMIM02092518–2728
443. JPMIM02092729–3121
444. JPMIM02093122–3627
445. JPMIM02093628–3873
446. JPMIM02095820–6158
447. JPMIM02096159–6426
448. JPMIM02096427–6758
449. JPMIM02096759–7138
450. JPMIM02097139–7316
451. JPMIM02097317–7540
452. JPMIM02097541–8020
453. JPMIM02098021–8363
454. JPMIM02098364–8784
455. JPMIM02098785–9163
456. JPMIM02099164–9398
457. JPMIM02172006–2091
458. SAAM 0001830–1832
459. SAAM 0001833–1834
460. SAAM 0001835–1837
461. SAAM 0001838–1840
462. SAAM 0001841–1846
463. SAAM 0001847–1849
464. SAAM 0001850–1862

Appendix C
Documents Considered by René Stulz, Ph.D.

***All other materials cited in the report**

EXHIBIT 1

Summary of At-Issue Funds

Fiscal Year 2015

(figures in billions)

Fund	First Offered	Lipper Classification [1]	Fund Total Net Assets	Fiscal Year End Date	Share Classes Offered [2][3]	Share Class Total Net Assets
Fixed Income Funds						
Core Bond Fund	Jun. 1991	Core Bond	$28.37	2/28/15	A	$5.03
					B	$0.02
					C	$1.05
					R2	$0.12
					R5	$0.36
					R6	$9.55
					Select	$12.23
High Yield Fund	Nov. 1998	High Yield	$10.27	2/28/15	A	$0.83
					B	$0.00
					C	$0.28
					R2	$0.01
					R5	$0.08
					R6	$1.98
					Select	$7.09
Short Duration Bond Fund	Sep. 1990	Short U.S. Government	$11.10	2/28/15	A	$0.23
					B	$0.00
					C	$0.12
					R6	$2.97
					Select	$7.78
Equity Funds						
Mid Cap Value Fund	Nov. 1997	Multi-Cap Core [4]	$15.96	6/30/15	A	$2.62
					C	$0.60
					Institutional	$10.32
					R2	$0.07
					Select	$2.35
Large Cap Growth Fund	Feb. 1992	Large-Cap Growth	$15.64	6/30/15	A	$4.67
					C	$0.60
					R2	$0.24
					R5	$1.39
					R6	$3.22
					Select	$5.52

EXHIBIT 1

Summary of At-Issue Funds

Fiscal Year 2015

(figures in billions)

Fund	First Offered	Lipper Classification [1]	Fund Total Net Assets	Fiscal Year End Date	Share Classes Offered [2][3]	Share Class Total Net Assets
U.S. Equity Fund	Sep. 1993	Large-Cap Core	$12.61	6/30/15	A	$1.40
					C	$0.25
					Institutional	$4.93
					R2	$0.18
					R5	$0.50
					R6	$2.98
					Select	$2.38
Value Advantage Fund	Feb. 2005	Multi-Cap Value	$11.29	6/30/15	A	$2.44
					C	$0.70
					Institutional	$5.06
					Select	$3.10

Source: Fund Certified Shareholder Reports; Fund Prospectuses; CRSP Mutual Fund Database

Note:

[1] Lipper Classification is from the CRSP Mutual Fund Database ("lipper_class_name") as of Fiscal Year-End 2015.

[2] Share classes are described generally in the fund Prospectuses and Certified Shareholder Reports as follows:

- Class A shares are available for purchase by the general public with a minimum initial investment of $1,000. Class A shares generally involve a front-end sales charge.
- Class B shares are available for purchase by the general public with a minimum initial investment of $1,000 and a maximum investment of $99,999. Class B shares generally involve a contingent deferred sales charge. Generally, Class B shares automatically convert to Class A shares after 8 years (Note, Class B shares of the Short Duration Bond Fund convert to Class A shares after 6 years).
- Class C shares are available for purchase by the general public with a minimum initial investment of $1,000. Class C shares generally involve a contingent deferred sales charge (Class C shares of the Short Duration Bond Fund purchased before 9/3/13 are an exception).
- Institutional Class shares are available for purchase by institutional investors with a minimum initial investment of $3,000,000. Institutional Class shares have no sales charges.
- Class R2 can be purchased by retirement plans with no minimum investment. Class R2 shares have no sales charges.
- Class R5 can be purchased by retirement plans and certain other accounts with no minimum investment. Class R5 shares have no sales charges.
- Class R6 can be purchased by retirement plans and certain other accounts. Class R6 shares have a minimum initial investment requirement of $5,000,000 per fund for discretionary accounts and $15,000,000 per fund for direct investors. There are no sales charges.
- Select Class shares are available for purchase by institutional investors with a minimum initial investment of $1,000,000. Select Class shares have no sales charges.

[3] Class B Shares are no longer available for purchase as of 11/1/09. Accelerated conversion of all Class B shares to Class A shares became effective from 6/19/15.

[4] Within the Certified Shareholder Report dated 9/3/16, the performance of the JP Morgan Mid Cap Value Fund is compared to both the Lipper Multi-Cap Core Funds Index and the Lipper Mid-Cap Value Funds Index.

EXHIBIT 2

Subadvised Funds
Retail Status and Corresponding At-Issue Fund
Fiscal Year 2015

At-Issue Funds	Corresponding Subadvised Funds	CRSP Retail Status [1]	Primarily Open to / Offered Through
Subadvised Funds Mentioned in the Complaints			
Fixed Income Funds			
Core Bond Fund	Columbia Variable Portfolio JP Morgan Core Bond Fund	Non-Retail	Variable Insurance or Annuity Products
	MetLife JP Morgan Core Bond Portfolio [2]	Non-Retail	Variable Insurance or Annuity Products
	Transamerica Core Bond Fund	Non-Retail	Institutional Investors
High Yield Fund	AST High Yield Portfolio	Non-Retail	Variable Insurance or Annuity Products
	LVIP JP Morgan High Yield Fund	Non-Retail	Variable Insurance or Annuity Products
	Principal High Yield Fund I	Retail	All Investors
Short Duration Bond Fund	Pemberwick Fund [3]	Retail	All Investors
Equity Funds			
Mid Cap Value Fund	LVIP JPMorgan Mid Cap Managed Volatility Fund (f/k/a LVIP JPMorgan Mid Cap Value RPM Fund)	Non-Retail	Variable Insurance or Annuity Products
	Transamerica JPMorgan Mid Cap Value VP Fund	Non-Retail	Variable Insurance or Annuity Products
	Voya (“VY”) JPMorgan Mid Cap Value Portfolio (f/k/a ING JP Morgan Mid Cap Value Portfolio)	Non-Retail	Variable Insurance or Annuity Products
Large Cap Growth Fund	Great West/Multi Manager Large Cap Growth Fund	Non-Retail	Retirement Plans
Value Advantage Fund	Pacific Select Fund Value Advantage Portfolio	Non-Retail	Variable Insurance or Annuity Products
U.S. Equity Fund [4]	N/A	N/A	N/A

EXHIBIT 2

Subadvised Funds
Retail Status and Corresponding At-Issue Fund
Fiscal Year 2015

At-Issue Funds	Corresponding Subadvised Funds	CRSP Retail Status [1]	Primarily Open to / Offered Through
Additional Subadvised Funds			
Fixed Income Funds			
Core Bond Fund	Bridge Builder Core Bond Fund	Non-Retail	Other
	SunAmerica JP Morgan MFS Core Bond Portfolio	Non-Retail	Variable Insurance or Annuity Products
	Transamerica JP Morgan Core Bond VP Fund	Non-Retail	Variable Insurance or Annuity Products
	SEI-SIIT Core Fixed Income Fund [5][6]	Non-Retail	Both $100,000 Minimum Investment and Eligible Investor
	SEI-SIMT US Fixed Income Fund [6][7]	Retail	$100,000 Minimum Investment
Equity Funds			
Mid Cap Value Fund	Transamerica Mid Cap Value Fund	Non-Retail	Institutional Investors
	Transamerica Partners Mid Value Portfolio	Non-Retail	Retirement Plans

Source: Goodman Complaint; Campbell Complaint; Subadvised Fund Prospectuses; CRSP Mutual Fund Database

Note:
[1] Retail status listed is from the CRSP Mutual Fund Database ("CRSP," variable "retail_fund") as of Fiscal Year-End 2015, unless noted otherwise.
[2] As of fiscal year-end 2015, CRSP lists the Metlife JPMorgan Core Bond Portfolio as non-retail. However, from 5/5/16 until 9/1/16, CRSP lists the fund as retail.
[3] Retail status of the Pemberwick Fund is not available hrough CRSP. The fund's 2015 prospectus allows for purchase by mail and wire with no investment restrictions.
[4] There is not an advisory fee claim against the JPMorgan U.S. Equity Fund.
[5] Retail status of the SEI-SIIT Core Fixed Income Fund is not available through CRSP. The fund's 2015 prospectus states that to invest in the fund, "you must be an Eligible Investor (i.e., institutions or other SIMC advisory clients that have entered into an investment management agreement wi h SIMC or employee benefit plans and other similar entities purchasing through approved intermediaries)."
[6] As of the 2016 prospectuses, JPMIM is no longer a subadviser for the SEI-SIIT Core Fixed Income Fund or the SEI-SIMT US Fixed Income Fund.
[7] CRSP lists the SEI-SIMT US Fixed Income Fund as retail for the fiscal year 2015. Beginning 9/1/16, CRSP lists he fund as non-retail.

EXHIBIT 3

ICA Section 36(b) Excessive Fee Litigations
Case Characteristics
2005 – 2016

		Named Defendants			Complaints Specifically Allege Defendants…	
Case [1]	**Filing Date**	**Adviser**	**Affiliated Subadviser**	**Independent Subadviser**	**Retained Excessive Fees Despite Contracting Work to a Subadviser**	**Performed Similar Services for Lesser Fees as a Subadviser for Independent Institutions**
1. Ingenhutt v. State Farm Investment Management	7/6/16	✔			✔	
2. Zoidis v. T. Rowe Price Associates	4/27/16	✔				✔
3. Obeslo v. Great-West Capital Management	1/29/16	✔			✔	
4. Ventura v. Principal Management Corporation	12/30/15	✔			✔	
5. North Valley GI Medical Group v. Prudential Investments	10/30/15	✔			✔	
6. Kennis v. Metropolitan West Asset Management	10/16/15	✔				✔
7. Wayne County Employees' Retirement System v. FMI	9/30/15	✔				✔
8. Redus-Tarchis v. New York Life Investment Management LLC	5/6/15	✔			✔	
9. Chill v. Calamos Advisors LLC	2/11/15	✔				✔
10. Kenny v. Pimco LLC	12/31/14	✔				✔
11. Zehrer v. Harbor Capital Advisors	12/22/14	✔			✔	
12. In Re Davis N.Y. Venture Fund Fee Litigation	12/19/14	✔	✔			✔
13. In Re Russell Inv. Co. Shareholder Litigation	12/8/14	✔			✔	
14. In Re Blackrock Mutual Funds Advisory Fee Litigation	5/27/14	✔	✔			✔
15. Kennis Trust v. First Eagle Investment Management	5/7/14	✔				✔
16. Curd v. SEI Investments Management Corporation	12/11/13	✔			✔	
17. Cox v. ING Investments LLC	8/30/13	✔			✔	
18. AC&E 401(K) Retirement Plan v. Principal Management Corp.	8/28/13	✔			✔	
19. Sivolella v. AXA Equitable Life Insurance Co.	4/15/13	✔			✔	
20. Sanford v. Equitable Funds Management Group	4/15/13	✔			✔	
21. Laborer's Local 265 Pension Fund v. iShares Trust	1/18/13	✔				
22. Kasilag v. Hartford Investment Financial Services	11/14/11	✔			✔	
23. Curran v. Principal Management Corporation	10/28/11	✔			✔	
24. Reso v. Artisan Partners Limited Partnership	6/24/11	✔				✔
25. Santomenno v. John Hancock Life Ins. Co.	10/22/10	✔			✔	
26. Southworth v. Hartford Inv. Fin. Serv., LLC	10/14/10	✔			✔	
27. Beck v. Capital Research and Management	7/31/09	✔				
28. McBride v. Capital Research and Management	7/21/09	✔				
29. Turner v. Davis Selected Advisers	4/23/09	✔				
30. Korland v. Capital Research And Management Co.	3/30/09	✔				

ICA Section 36(b) Excessive Fee Litigations
Case Characteristics
2005 – 2016

Case [1]	Filing Date	Named Defendants: Adviser	Named Defendants: Affiliated Subadviser	Named Defendants: Independent Subadviser	Complaints Specifically Allege Defendants…: Retained Excessive Fees Despite Contracting Work to a Subadviser	Complaints Specifically Allege Defendants…: Performed Similar Services for Lesser Fees as a Subadviser for Independent Institutions
31. Kreek v. Wells Fargo & Company	11/26/08	✔			✔	
32. In Re American Mutual Funds Fee Litigation	5/16/08	✔				
33. Boyce v. AIM MGMT Group Inc, et al	12/7/06	✔				✔
34. Gallus v. Ameriprise Financial (Riversource Funds)	11/15/06	✔				✔
35. In Re Salomon Smith Barney Mutual Fund Fees	10/16/06	✔				
36. Zucker v. Aim Advisors Inc, et al	8/18/05	✔				
37. Jones v. Harris Associates (Oakmark Funds)	6/10/05	✔				✔
38. Parthasarathy v. RS Investment Management [2]	5/16/05	✔		✔		
39. In Re AllianceBernstein Mutual Funds Excessive Fee Litigation	2/4/05	✔				
Total: 39		**39**	**2**	**1**	**17**	**12**

Source: Coalition of Mutual Fund Investors; ICI Mutual, "Section 36(b) Litigation Since *Jones v. Harris"*; PACER; Bloomberg Law; Courthouse News Service; Thomson Reuters Westlaw; LexisNexis Courtlink

Note:

[1] Cases listed are those involving ICA open end mutual funds for which the latest-dated complaint includes allegations of excessive fees under Section 36(b) of the ICA. Cases were identified using the Coalition of Mutual Fund Investors ("CMFI") litigation tracker, ICI Mutual's report on "Section 36(b) Litigation Since *Jones v. Harris*," or via a keyword search of four docket research databases: Bloomberg Law, Courthouse News Service, Thomson Reuters Westlaw, and LexisNexis Courtlink. Two keyword searches were performed: (1) “Investment Company” AND “36(b)”, and (2) “excessive fee” AND [“fund” OR “funds”] AND [“subadvis*” OR “sub-advis*”]. Cases involving JP Morgan are excluded. Cases brought under the Employee Retirement Income Security Act with no reference to Section 36(b) of the ICA are also excluded.

[2] Plaintiffs' theory of excessive fees stemmed from allegations the adviser "participat[ed] in market time and late trading activities."

EXHIBIT 4

Settlements Related to Mutual Fund Market Timing Regulatory Inquiries

(figures in millions)

Firm(s) Involved	Named Respondents: Adviser	Named Respondents: Affiliated Subadviser	Named Respondents: Independent Subadviser	Earliest Settlement Date	Monetary Settlement [1]	Promised Fee Reductions Amount [2]	Total Settlement
1. Alliance Capital Management L.P.	✔			Dec. 2003	$250	$350	$600
2. American Express Financial Corp.	✔			Dec. 2005	$15		$15
3. Banc One Investment Advisors Corp.	✔			Jun. 2004	$50	$40	$90
4. Bank of America Corp. [3]	✔			Mar. 2004	$375	$80	$455
5. Deutsche Bank, AG	✔			Dec. 2006	$122	$86	$208
6. Federated Investors, Inc. [4]	✔			Nov. 2005	$72	$20	$92
7. Fleet - Columbia Management Advisors [3]	✔			Feb. 2005	$140	$80	$220
8. Franklin Advisers, Inc.	✔			Aug. 2004	$50		$50
9. Fred Alger Management, Inc. and Fred Alger & Company, Inc.	✔			Jan. 2007	$40	$5	$45
10. Fremont Investment Advisors, Inc.	✔			Nov. 2004	$4		$4
11. Invesco Funds Group, Inc., AIM Advisors, Inc., and AIM Distr butors, Inc. [5]	✔			Sep. 2004	$377	$75	$452
12. J. & W. Seligman & Co., Inc. [6]	✔			Mar. 2009	$11		$11
13. Janus Capital Management LLC	✔			Apr. 2004	$101	$125	$226
14. MFS Investment Management	✔			Feb. 2004	$225	$125	$350
15. Pacific Investment Management Company LLC	✔	✔		Jun. 2004	$68		$68
16. Pilgrim Baxter & Associates, Ltd. [7]	✔			Jun. 2004	$90	$10	$100
17. Putnam Investment Management LLC	✔			Apr. 2004	$110		$110
18. RS Investment Management L.P.	✔			Oct. 2004	$25	$5	$30
19. Strong Capital Management, Inc. [8]	✔			May. 2004	$80	$35	$115
20. Wachovia - Evergreen Investment Management Co.	✔			Sep. 2007	$33		$33
21. Waddell & Reed Financial, Inc.	✔			Jul. 2006	$52	$25	$77
Total	**21**	**1**	**0**		**$2,290**	**$1,061**	**$3,351**

Source: SEC Filings; SEC Press Releases; SEC Orders and Notices from Administrative Proceedings; New York State Attorney General Press Releases; McCabe (2009), "The Economics of the Mutual Fund Trading Scandal"

Note:

[1] Monetary settlement is the sum of disgorgement, restitution, penalties, and any additional charges issued on the firms by the SEC, the New York Attorney General, or other governing body.

[2] Fee reductions indicate the total fee amount agreed to be reduced over a five year period.

[3] Fleet's Columbia Management Advisors was acquired by Bank of America Corp. Fleet's fee reductions thus applied to Bank of America.

[4] In addition to the $72 million settlement, Federated paid out $8 million to damaged funds before reaching a settlement.

[5] Under the settlement, Invesco Funds Group, Inc. paid a monetary settlement of $327 million, and AIM Advisors, Inc. and AIM Distributors, Inc. paid a joint monetary settlement of $50 million. The hree firms also agreed to jointly reduce fees by $75 million over the next five years.

[6] J. & W. Seligman & Co. Inc. settled with the New York State Attorney General, but not the SEC. Prior to the settlement, Seligman voluntarily paid out $2 million to its damaged investors and reduced fees by an estimated $4 million.

[7] The firm's owners, Gary L. Pilgrim and Harold J. Baxter, settled for an additional $80 million each.

[8] The firm's owner, Richard Strong, settled for an additional $60 million.

EXHIBIT 5

At-Issue Funds
Advisory Fees and Advisory Fee Waivers [1]

Fund [2]	Advisory Fees / Waivers [3]	FY 2013	FY 2014	FY 2015	FY 2016
Fixed Income Funds					
Core Bond Fund	Contractual Advisory Fee	0.30%	0.30%	0.30%	0.30%
	Advisory Fee Waiver	0.00%	-0.01%	-0.02%	-0.03%
	Final Advisory Fee	**0.30%**	**0.29%**	**0.28%**	**0.27%**
High Yield Fund	Contractual Advisory Fee	0.65%	0.65%	0.65%	0.65%
	Advisory Fee Waiver	-0.01%	0.00%	-0.03%	-0.03%
	Final Advisory Fee	**0.64%**	**0.65%**	**0.62%**	**0.62%**
Short Duration Bond Fund	Contractual Advisory Fee	0.25%	0.25%	0.25%	0.25%
	Advisory Fee Waiver	0.00%	-0.01%	-0.04%	-0.03%
	Final Advisory Fee	**0.25%**	**0.24%**	**0.21%**	**0.22%**
Equity Funds					
Large Cap Growth Fund	Contractual Advisory Fee	0.50%	0.50%	0.50%	0.50%
	Advisory Fee Waiver	0.00%	0.00%	0.00%	0.00%
	Final Advisory Fee	**0.49%**	**0.50%**	**0.50%**	**0.50%**
Mid Cap Value Fund	Contractual Advisory Fee	0.65%	0.65%	0.65%	0.65%
	Advisory Fee Waiver	-0.05%	-0.05%	-0.04%	-0.04%
	Final Advisory Fee	**0.60%**	**0.60%**	**0.61%**	**0.61%**
U.S. Equity Fund [4]	Contractual Advisory Fee	0.40%	0.40%	0.40%	0.40%
	Advisory Fee Waiver	0.00%	0.00%	0.00%	0.00%
	Final Advisory Fee	**0.40%**	**0.40%**	**0.40%**	**0.40%**
Value Advantage Fund	Contractual Advisory Fee	0.65%	0.65%	0.65%	0.65%
	Advisory Fee Waiver	-0.01%	-0.02%	-0.03%	-0.03%
	Final Advisory Fee	**0.64%**	**0.63%**	**0.62%**	**0.62%**

Source: Certified Shareholder Reports and Form NSAR-B

Note:

[1] This exhibit does not reflect waivers of other fees, such as administration fee waivers.

[2] The Fixed Income Funds each have fiscal years ending in February; the Equity Funds in June.

[3] Contractual Advisory Fee is calculated as total advisory fees for the year as a percentage of average net assets. Advisory Fee Waiver is calculated as total advisory fee waivers offered for the year as a percentage of average net assets. Each of the funds has a non-zero total advisory fee waiver for all periods, but some of the Advisory Fee Waiver figures may round to 0.00% of average net assets.

[4] Only the administration fee is at issue for the U.S. Equity Fund.